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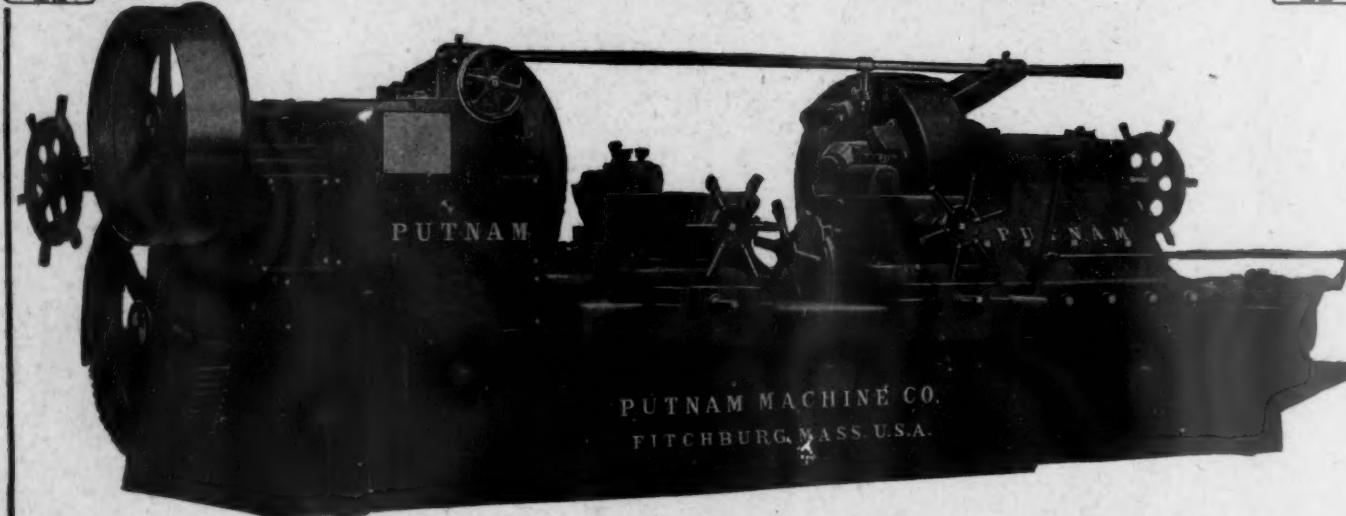
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Number of the Railway Age January 3, 1919

Railway Supply Industry in the War. A comprehensive review of the extent to which the railway supply companies have manufactured war supplies, and a story of some of the things that the heads of railway supply companies have contributed to the winning of the war.

Statistics. The Annual Review Numbers of the Railway Age have always been noted for the thoroughness and accuracy of the statistics relating to all departments. This year they will be more complete and comprehensive than ever, if that is possible. They will include statistics concerning the new mileage, abandoned mileage, important construction projects, car and locomotive statistics, receiverships and foreclosures and the usual signaling statistics.

Government Contracts with the Railways. A story covering the exact status of the various railroad corporations in relation to signing the contracts with the Railroad Administration.

Equipment situation. There will be a complete discussion of the situation so far as it relates to cars and locomotives.

Export business. What are the possibilities for the railway supply industries?

Government control of the railway and the Supply Industry.

Railway Men in the War. How many and what they accomplished.

A Discussion of the Present Status of the Interstate Commerce Commission and the State commissions.

Federal Valuation. Judge Prouty is preparing a special article for us on the present status of federal valuation.

The Traffic Department. The duties of this department have changed very greatly under federal control. There will be a special article discussing this department in its present aspect.

The Standardization of Locomotives and the Centralization of Purchases will be discussed.

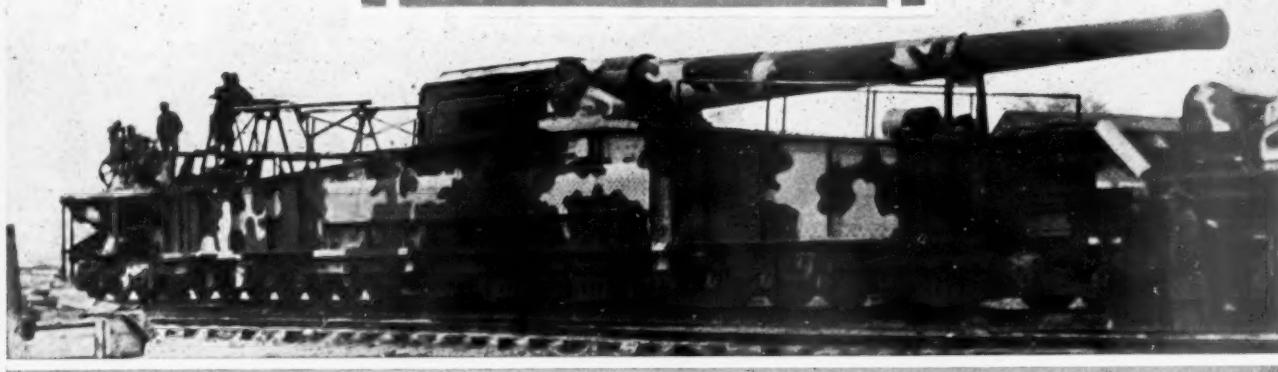
What Is To Be Done With The Railways? Naturally, the consideration of this question will occupy considerable space in the way of special articles. The work which has been done under federal control will also be covered thoroughly.

There will also be a number of other articles which cannot be announced at this time.

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Railway Age

Vol. 65 December 20, 1918 No. 25



One of the Big Guns for the U. S. Army, Recently Demonstrated at Aberdeen, Md. See Page 1113.

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WE GUARANTEE, that of this issue, 8,000 copies were printed; that of these 8,000 copies, 7,335 were mailed to regular paid subscribers; 58 were provided for counter and news companies' sales; 301 were mailed to advertisers; 135 were mailed to employees and correspondents; and 171 were provided for new subscriptions, samples, copies lost in the mails and office use; that the total copies printed thus far to date were 439,392, an average of 8,616 copies a week.

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EDITORIAL

Railway Age

Important for Subscribers

In the interest of the conservation of paper, the Railway Age will print at the end of the present volume only a sufficient number of indexes to meet direct requests from its subscribers. Those desiring indexes should, therefore, immediately advise the New York office, 2201 Woolworth Building, New York.

There is no more interesting or spectacular play in football than a successful forward pass. The conditions are such,

McAdoo in Terms of Football however, that it is exceedingly difficult to carry off a play of this kind successfully; often the ball is blocked and sometimes the opposing side is able to catch it fairly and make big gains.

Ordinarily, therefore, a forward pass is attempted only occasionally in the early part of the game and when conditions are regarded as specially favorable. On the other hand, if one side is beaten, it will often take long chances near the end of the last quarter and will repeatedly try to use the forward pass as a forlorn and desperate hope. Was not Mr. McAdoo, in suggesting that government control be continued for five years from the first of next January, making one last desperate effort to try to put something over? Fortunately, Congress, with the hearty backing of public opinion, promises to block this little play.

Now that the days of federal control of the railroads are numbered, the question is being asked on many sides as to

What of the Standard Locomotives? what will become of the standard locomotives. These locomotives are not meeting with favor on a number of the roads, where they promise to become a burden because of not being specially

suitied for the conditions under which it is necessary to operate them. It has been suggested that possibly the larger proportion of them will find their way into the hands of the second-hand dealers in the near future, which will in turn sell them to the smaller roads that need only a very few locomotives and which ordinarily operate their power well within its capacity, or which are not specially concerned with their operating efficiency because of the limited amount of traffic handled. On the other hand, possibly some few of the roads which find that some of the types of the standard locomotives are specially adapted to their peculiar conditions will take them off the hands of other roads that cannot use them to such good advantage. It has been suggested that some roads can even afford to pay a bonus in order to get rid of the standard locomotives and secure types better suited to their special conditions. One party facetiously suggests that it might be a splendid idea to melt the whole mess of standard locomotives into a big casting and erect it as a monument in some central location in Washington, suitably ascribed to the handful of men who, in spite of the warnings they received, went ahead and attempted to foist their hobby upon the American railroads. Such a warning might come in useful for future generations.

It is fortunate indeed that the United States Department of Agriculture has made such thorough studies of the transportation of perishables in refrigerator cars and that its data has been available in designing the standard refrigerator cars and in planning for the rebuilding of many of the refrigerator

Safe Transportation of Perishables

cars now in service. The address by M. E. Pennington of the food research laboratory of the Department of Agriculture, before the American Society of Mechanical Engineers, which is printed elsewhere in this issue, is of more than ordinary interest because of the light that it throws upon the development of satisfactory designs for refrigerator cars. Equally important, however, is the necessity of taking radical steps to prevent perishables from freezing in winter. Great quantities of fruit and vegetables are lost in this way each year, and determined steps should be taken looking toward the application of a suitable type of heater apparatus to the box cars in which such perishables are transported. It is hardly sufficient to say that shipments of this kind must not be made when a cold wave threatens or when the weather is unsatisfactory. The rapidity with which the cold waves come on in different parts of the country, the inaccuracy of weather predictions, and the fact that it is impossible to state definitely just how long it will require to move a car between two points, make it necessary to adopt much more effective measures and precautions.

The way of the inland waterway advocates in recent years has been hard. Nevertheless they have never given up hope.

You Scratch My Back and I'll Scratch Yours They have conducted an extensive propaganda. They have sent delegation after delegation to Congress. They

have secured appropriations aggregating millions of dollars to deepen and maintain channels for traffic which does not exist. In spite of these efforts the streams are still practically devoid of business. The assumption of railway management by the government gave these enthusiasts a new hope. They at once concentrated their energies on the Railroad Administration in an endeavor to secure its assistance in placing waterway transportation on its feet, since it had shown its inability to compete successfully with the railways in the past. They secured the creation of the Division of Inland and Coastwise Waterways and the authorization of considerable expenditures for barges and other floating equipment. Now that the end of Federal control appears to be in sight, there is evident consternation in the camps of the Railroad Administration and the waterway advocates alike. The St. Louis Chamber of Commerce, the St. Louis Merchants' Exchange, Governor Lowden of Illinois, and others have appealed to the director general for assurances that the waterway plans will not be abandoned. In reply the director general has stated that these projects will not be dropped and he in return asks that support be given his proposal for the five-year extension of government control. In his letter to Governor Lowden he said that, "It is proper that I should call your attention to the fact, however, that unless Congress should extend the period of federal control so that a reasonable opportunity may be afforded for a fair test of the value of unified railroad

operation along with co-ordinated inland waterways operation, the experiment on the Mississippi river may not hold out promise. I doubt if the Mississippi river operation can produce satisfactory results if the railroads should be turned back soon to private control. The old methods of competition will be revived and it is probable that the waterways experiment may not be able to survive."

The decreasing activity in construction work common to this season of the year together with the industrial disturbance naturally following the signing of the armistice has produced a marked decrease in the demand for men, in some cases actually producing a noticeable surplus as, for instance,

Opportunity for Reorganization

among engineers on construction work. The change will be a welcome one to the engineering executives who have had to struggle with more or less incompetent assistants in the subordinate positions. As long as a year ago, one chief engineer stated that he did not have a single man below the grade of division engineer who was qualified for promotion. Recently an instrumentman with several months' experience on grading work was asked if the contractor had a "standard-gage outfit" and from the blank stare which he returned it was clear that the term was entirely new to him. He also was unable to answer any questions not of direct application to the setting of center or grade stakes. While the attitude of railway managements toward engineers in the past may be the underlying cause of this condition, the situation has been influenced more recently by the inability of the railroads to compete with outside industries in the rates of pay for these men, notwithstanding the fact that the Railroad Administration has given material advances to all classes of employees. This situation has now been temporarily relieved and there will be an opportunity for the railroads to improve the personnel of their engineering staffs. With the opening of work in the spring, and promise of extensive highway construction as well as building work, there will be a return, at least in part, of the severe competition for men of technical training experienced during the past two years.

Present conditions, therefore, offer a splendid opportunity to strengthen and improve the organizations.

Blocking Foreign Trade

CONSIDERABLY more than a year ago the *Railway Age* looked forward to the time when peace would finally be declared and the American business men would be able to take advantage of the opportunity to develop export trade. Ever since that time we have searched for all the information that we could find that would be helpful to the railway supply interests in developing foreign markets, and have published a large number of articles, many of which were specially written for us by experts with the needs of the railway supply industry in mind. We felt that the nation had learned a lesson in preparedness, and we joined with other business papers in trying to awaken a widespread interest in the export business which would insure future prosperity to the country. In spite of the fact that our allies have had to exhaust their resources and have had to bear the brunt of the conflict they have realized the necessity for preparedness in this direction and have planned thoroughly and comprehensively for the development of their export business at the close of the war. This country was in a most fortunate position to make similar investigations and plans, but what has been done?

The Bureau of Foreign and Domestic Commerce has been doing some good work in the way of investigating the possibilities of foreign trade and has paid particular attention to railway supplies. Through Frank Rhea's report on Aus-

tralia, which was reviewed in the *Railway Age* some months ago, and through another report of his, which is now in the government printing office, on the market for railway supplies and materials in China and Japan, there is shown the big opportunities that lie before American railway supply companies in Australia and the Far East. Only this last week the Bureau published a very detailed report on investments in Latin America, in which it emphasized the necessity for American investments in South American railroads and other industries, because of the fact that it thereby assured a market to America for its products in these industries. It is also about to send to South America an investigator to look into the market for machine tools. Readers of the *Railway Age* are already familiar with the reports on the railways of Mexico and Brazil which have recently been issued by the Latin American division of the Bureau.

It is unfortunate that the Department of Commerce has at its head a man like Secretary Redfield, who seems to be trying to undo all of its good work by decrying that this is no time for America to exploit its foreign markets while England and France have yet to be put on their feet. England and France are good friends of ours, but we doubt if even their most reasonable business men want us to hand them the foreign markets of the entire world without any competition whatsoever.

Unity

NOW IS THE TIME for railroad executives to take stock; it is a time for searching of hearts. Congress looks to the railroad men for constructive suggestions as to the working out of a plan for remedial railroad legislation. In the formation of a plan each man should clearly differentiate to himself between those factors which are the products of his duty to his security holders, his preconceived personal predilections, and the financial condition of his own road; and those factors in the plan which from years of study of, and experience with, railroad problems he knows to be essential to any sound plan or reorganization. On the first set of factors, unity of opinion is not necessary nor even necessarily desirable; on the second set of factors, unity of opinion and action are absolutely essential.

During five days of last week the Standing Committee of the Railway Executives (this is the new name of the Railway Executives' Advisory Committee, which is composed of 25 members) discussed every phase of the present railroad problem, and tentative plans and suggestions were drawn up. Another meeting of this committee is to be held on Friday of this week in New York. The standing committee will report at a meeting of the railway executives to be held in January in Chicago.

If the railroad executives were to agree upon a comprehensive and detailed plan to present to Congress which would include all or a large part of the individual axes that each company has to grind, it would in all likelihood meet with insurmountable opposition on the part of Congress and would also arouse only suspicion and distrust on the part of the general public.

The public, both as shippers and travelers and as taxpayers, has a paramount interest in the railroad problem. Labor has its own axe to grind, as have also the holders of railroad securities. A detailed inflexible, theoretical plan worked out by a group of any of the various interests involved and presented for acceptance or rejection would be an unwarranted assumption of authority.

Take the most important of the interests involved—the public. It is the duty of Congress to interpret the desires of their constituents. While there may be a comparatively few men in Congress who are familiar enough with railroad management and railroad finance to work out any detailed plan of reconstruction for the railroads, nevertheless Con-

gress should, by right, be a party to the formation of any plan. It would be entirely wrong to present to Congress a cut-and-dried plan for "rejection or approval only." Therein lies the insult which William G. McAdoo, director-general of railroads, laid upon Congress in his ultimatum, issued in connection with his request to have the roads retained under government operation for five years more.

As regards labor, one of the lessons that the war has taught England, and, to a lesser extent, the United States, is that a state of continuous strife between labor and capital is a ruinously wasteful economic condition for which there is no real necessity. Co-operation between labor and capital, if it is to be co-operation, and not a mere jockeying for position, must be based on mutual consultation and agreement, based upon reason and not upon superior force. This involves labor's participation in the discussion and working out of a plan of reorganization of the railroads and precludes the adoption of a detailed plan by railroad executives.

Security owners and officers of savings banks and insurance companies have their own organization which has discussed at length the railroad problem. Simple justice, as well as expediency, would suggest that this organization have a voice in the formation of a reconstruction plan for the railroads.

Mr. McAdoo holds over the head of Congress directly and over the head of labor, the security holders and the railroad executives indirectly the threat of immediately returning the roads to their owners. This may be a bluff pure and simple, which if it does not prove successful in frightening Congress into giving the roads up to government operation for five years, would never be carried out. On the other hand, it may be a forlorn hope indicative of the state of mind of the advocates of government ownership—despite Mr. McAdoo's evasion of the direct espousal of the government ownership cause, because no one, unless it be Mr. McAdoo himself, can be deceived as to what the adoption now of his five-year proposal would mean in the long run. Mr. McAdoo may quite possibly stand ready to carry out his threat if it is not successful in frightening Congress.

Does this necessarily mean that some one of the various interests vitally affected must as a matter of public safety work out a self-contained automatic and inflexibly complete scheme for the railroads' reorganization at once? If it did, the burden would lie on the railroad executives. Unquestionably the financial difficulties involved in an immediate return of the railroads to their owners would be great; but, in our opinion, they would not be great enough to constitute a crisis wherein action on the part of the executives would be immediately imperative. The bankers would have to step into the breach. Some roads could take care of their own immediate financial situation; others, and possibly the majority could not; they would need the temporary extension of bankers' credit. It is the bounden duty of bankers to extend this necessary credit. It is all well enough for some complacent gentlemen to sit back and criticise the government for having taken the roads in the first place, and argue that the responsibility was lifted from their shoulders by the President's proclamation, and that the government and the Administration, by taking the roads, assumed a responsibility which they cannot now fairly relinquish. Fairly or unfairly, if the roads are immediately dropped by the government a responsibility falls on the shoulders of the bankers who in the past have profited through the sale of railroad securities. If they lay down under this responsibility or use the occasion to drive a hard bargain with the railroads, it will be to their lasting discredit; but it seems safe to assume that the bankers will fully live up to their responsibilities, and, if they do, the McAdoo threat has all the edge and point taken off of it.

If the railroad executives are a unity in drawing up certain general suggestions for discussion by Congress, labor and representatives of the security owners, and if in this dis-

cussion unity of purpose can be maintained, a sudden relinquishment of the roads by Mr. McAdoo would not be a disaster, however unfair a political trick it might be.

The Next Step

SO EMPHASITICALLY has the public expressed itself in relation to Director General McAdoo's proposal to extend the period of federal control over the railways for five years that there is very little likelihood that Congress will give it serious consideration. This means one of two things; either that the railroads will be turned back to their owners in the immediate future or that the President and Director General McAdoo will be placed in the unfortunate position of having to admit that they were taking a long chance in trying to force the hand of Congress, and indirectly commit it to the government ownership of the railroads—for the five-year proposal would mean nothing less than this.

If the President and the director general were in earnest, then it becomes necessary for Congress and the railway executives to prepare for the immediate return of the roads. No one questions the fact that it will not be practicable for the railroads to continue to operate for any length of time under the conditions that existed prior to their being taken over by the government. Neither will it be possible for the present Congress to provide the legislation that will be needed for the final and complete solution of the railroad problem. It would seem, therefore, that the logical course to pursue would be to relieve the roads as quickly as possible, when they are turned back to their owners, of some of the most serious restrictions to which they were subjected before they were taken over by the government. Matters of less pressing nature could then be followed up at a later period and the problem would be solved and the conditions corrected by stages, which after all might not be a bad course to follow.

Under these circumstances, what changes will it be most necessary to make in order to give the railroads a fair deal? Is there any better course to follow than to examine into the measures which were taken to relieve the railroads of their various handicaps when they passed from private ownership into government control?

The financial condition of many of the properties was most serious during the latter months of private operation; the government by assuming responsibility for the operation of the roads and lending financial support to the corporations was able to relieve this situation. Director General McAdoo promptly raised the rates, but wage increases and other increased costs of operation have offset this and some of the railroads have had to draw pretty heavily upon the revolving fund of \$500,000,000. It will, therefore, be necessary for Congress to see, for the time being at least, that the present rates are maintained or that the government in some way guarantees the net returns. It will be necessary also to allow the roads easy terms on which to repay their indebtedness to the government. If a broad-minded policy is adopted, the confidence of the investors will be restored and the bankers, whose support is so necessary, will be more apt to extend the assistance mentioned in the editorial on "Unity" in this issue.

Director General McAdoo admits that it is necessary to relieve the railroads of the hampering and conflicting restrictions placed upon them by combined state and federal regulation. Congress should, therefore, relieve this situation by providing for federal incorporation of the railroads, thus making them responsible to one central federal body and at the same time insuring that the issuance of new securities will be carefully scrutinized, thus furnishing a certain amount of protection to the investors.

One of the most difficult problems with which the railroad managements have had to contend has been that relating to

labor. For the present, might it not be well to consider that the present working conditions and wages are satisfactory, and should be maintained except for certain minor differences that are now in the course of investigation by the boards of adjustment? The one class of men who as a group have not been adequately compensated and who should receive immediate consideration are the minor supervising officials. They are not organized, and the railroads should see that these men who are vital to their interests should be encouraged to put forth renewed efforts. It would seem that without any special attention on the part of Congress, the railroad executives and the labor leaders could come to an agreement concerning the continuance of the present conditions which would be satisfactory to both sides. Manifestly it is going to be impossible to serve the public acceptably if these two interests do not get together on a sound basis and show a disposition to give each other a square deal.

If the railroad executives do as they ought to do and as there are indications that they will do, and extend the hand of comradeship to labor, American labor will have an opportunity for constructive work which has never been offered labor men before in peace times in any country. If, in accepting an offer of consultation and co-operation in working out this railroad problem, labor leaders were to show the broad statesmanlike qualities that Samuel Gompers has shown in his co-operation with the Administration in war work, the benefits both to labor and to the public will be incalculably great. It is the opportunity of a lifetime for some labor man.

There are other advance steps that must be taken, but which might well be postponed (so far as action by Congress is concerned) to give the railroad managers an opportunity of trying to work them out on a practical basis before passing such legislation as may be necessary to insure these methods being continued and more generally applied. While it is true that many of these things are prevented by the application of the Sherman law, it would seem that this act could be set aside in so far as it applies to the railroads, in those respects which prevent the joint use of terminals, the pooling of freight car equipment, and other features of unified operation, which are desirable and will not stand in the way of such competition as may be desirable in the interests of giving the best possible service to the shippers.

Finally, there is a class of legislation that has been proposed, the practicable results of which are questionable in the minds of many people and which it might be well to postpone for some considerable time, with the idea of making extended studies and experiments. This might include features of which, although they may be deemed necessary and advisable from certain standpoints, are more or less theoretical or idealistic, and will require such radical changes that it will be wise to defer them until some of the factors above-mentioned may be worked out to a satisfactory conclusion.

The newspapers generally are lamenting the fact that the railroad problem is in the hands of politicians and that it will be solved on the basis of political expediency. While to a certain extent this may be true, in a larger way it must be recognized that a new era has dawned and that the business men throughout the land have indicated in no uncertain way that they propose to have this question settled on good sound business principles. This is shown by the resolutions that have been passed by various commercial organizations and particularly by the action that was taken at the Reconstruction Conference at Atlantic City two weeks ago, which was held under the auspices of the Chamber of Commerce of the United States. The railroad committee of the Chamber of Commerce of the United States is making a very thorough investigation of the transportation problem and proposes to bring the facts which are developed by this investigation before its entire constituency, which includes business men throughout the land.

It must not be forgotten also that the business papers which have done remarkable work in helping the government and the industries during the war and which have taken a larger place in American industry and business than they ever before thought of occupying, will doubtless see that this question and other questions affecting business are considered from the standpoint of economics rather than politics. It was the business papers that were largely responsible for the final passing of the Webb bill and it is a significant fact that the editors of these papers are watching the developments in the transportation situation very closely. The newspapers of the country are also following developments critically. All these factors combined should insure the most careful and unselfish attention on the part of Congress.

Why Not Order New Equipment?

(Q) UESTION.) Do the railroads need new locomotives? (A) (Answer.) Yes, surely. The statement has been made in some quarters that the present power has handled the heaviest traffic that the railroads of this country have ever had to carry and that now that war traffic has fallen off, there is a surplus of power. Also that many locomotives are in good repair and white-leaded ready for any emergency. It must be remembered, however, that a very large proportion of these locomotives are old and cannot be operated economically. Moreover, if we were to have another hard winter they would quickly be put out of business or could not be operated to advantage because they are outgrown and have not sufficient reserve capacity. If machinery of this kind were owned by an industrial concern, it would be scrapped and replaced by up-to-date tools, with the result that the operating charges would be so greatly reduced per unit of work performed that the new investment would be fully justified.

(Q.) Should the Railroad Administration order new locomotives at this time?

(A.) Yes. For two reasons. First, they will be badly needed next year. Second, it will promote the general prosperity of the country. At this time, other departments of the government are allowing work to be continued on material that was ordered for war purposes and will never be used; they are doing this solely in order to make it possible to bridge over the period from war to peace conditions, so as not to too greatly disturb industry. The locomotives that will be ordered will serve a useful purpose and will be a big factor in solving the industrial problem. If the railway supply industry, which has surely done its part in helping to make war supplies, should be forced greatly to reduce its output at this time or stop work altogether, a large number of men will be thrown out of work and places cannot be made for the boys who are coming back from the other side. It must not be forgotten that the railway supply industries employ about as many men as we now have in service on the other side. Moreover, the number of the railway supply industry employees who have families depending upon them is, of course, far greater because a large proportion of the men in service do not have dependents.

(Q.) What excuse has the Railroad Administration for not ordering locomotives and cars at this time?

(A.) Because it says the railway corporations will not pay for them.

(Q.) Why will the railroad corporations not pay for this equipment?

(A.) Because it is only a question of time when the railroads will be returned to private management and the corporations do not care to be saddled with a lot of so-called standard equipment that will be a burden to them in the future because it is not suited to their peculiar conditions and cannot be operated efficiently and economically.

(Q.) How about the prices for this equipment?

(A.) Neither the government nor the railroads wish to pay war prices for it. On the other hand, the Administration and business men generally insist that the present wage scales be continued. There is little possibility of any great decreases in prices for a long time to come. Inasmuch as good wages and plenty of business are necessary for the public welfare, it would seem that some arrangement could be made whereby the government would bear a fair proportion of the increased prices in order to promote business prosperity. If all sorts of public buildings and public improvements are to be authorized under the present scale of high prices in order to provide work for everybody, why is it not just as fair to promote the building of railroad equipment, which is not only necessary, but is vital to the continued prosperity and development of the nation?

(Q.) Is there a solution to this deadlock?

(A.) Yes. If the railroad corporations can be granted some financial assistance and if they are allowed to order the equipment that conforms to their own individual standards, they will undoubtedly be willing to do so, particularly if they are impressed with the necessity of helping to bridge over the present industrial crisis. They have responded loyally and patriotically in the past; undoubtedly they will be glad to do so again.

(Q.) Is there any precedent for granting the railroads permission to order other than standard equipment?

(A.) Yes. The Virginian, Baltimore & Ohio, Philadelphia & Reading and Boston & Maine have been granted such permission.

(Q.) Is Congress interested in the prosperity of this country? (A.) Yes.

(Q.) Has it any influence with the Railroad Administration? (A.) Yes. Particularly now that the war is closed and autocratic methods which were necessary under war conditions are being discarded.

(Q.) How can Congress be made to help in this matter?

(A.) If the railroad men and railway supply men will explain the situation clearly to the congressmen from their particular districts, someone will surely see the light.

New Books

Investments in Latin America and the British West Indies.—*Special Agents' Series No. 156 of the Bureau of Foreign and Domestic Commerce.* Bound in paper, 544 pages. To be obtained through the Superintendent of Documents, Government Printing Office, Washington, or the district and co-operative officers of the Bureau of Foreign and Domestic Commerce. Price, 50 cents.

The Department of Commerce in this report calls attention to the great opportunities that exist for investment in Latin-America in the further development of railroads and public utilities, in agriculture, etc. Investment of surplus capital is urged as a means of assuring American manufacturers and exporters a suitable share of South American trade. It has been apparent in the past, the report emphasizes, in South America and elsewhere that the nations that supply the capital to develop the resources of a region also supply the equipment needed for such development.

The author of the report, Frederic N. Halsey, of New York, a trade commissioner for the Bureau of Foreign and Domestic Commerce, describes in detail the various fields that are open to investors, and also outlines the extent to which European capital is already invested. Among other things he goes into great detail concerning the development and present status of the railroads of each of the countries in question and shows how each railroad company has been constructed and financed and where its stocks and bonds stand as investments. A map of the South American railroads is appended.

Letters to the Editor

What Are His Motives?

ROCHESTER, N. Y.

To THE EDITOR:

After reading the reasons, as set forth by President Wilson, for the relinquishment of the railroads from government control and the problems that arise for adjustment and future supervision, the proposal made by Mr. McAdoo that the government be given five more years to control the destinies of transportation companies gives cause for serious reflection.

Thoughtful persons cannot help but admire the attitude these transportation companies have assumed under government control. They have been our second line of defense. They have contributed in no small measure to the numbers "over there," to the detriment of themselves. Officials have labored early and late, wrestling with their own problems, and these problems have been numerous. They have co-operated in every way possible, and they, the carriers themselves, and the men in their employ have certainly helped to win this victory.

The shipper and the traveler have been seriously inconvenienced, but I think they, too, have realized the situation and have made the best of it. The question is, how long will they stand the existing situation? Mr. McAdoo in his suggestion for assuming control of the railroads for five more years hold forth no improvement over existing conditions to help solve this puzzle.

We admit that in the past the railroads adopted certain measures which were not just or fair, rebates and discriminations, though at the time they were followed they were not unlawful. We have witnessed an era of regulation which almost stifled the growth of these important arteries of commerce.

In view of all this, is it not now the time to wipe off the slate and start clean? The railroads have learned a lot, and so has the public. They have witnessed the government put into effect and carry out just what so many of our managers wished in years gone by, and have seen the benefit gained therefrom. The railroads have made this country, and the success of both is dependent on the other.

To my mind, there is only one way to settle this matter—to return the carriers to their rightful owners and to allow them the same privileges as "Uncle Sam," for if it is all right for "Uncle Sam" to do it, why not for the carriers themselves. Strengthen our Interstate Commerce Commission in numbers and require that at least 50 per cent of them be practical railroad men, and do away with our state commissions so far as they affect the steam railroads or those who do intra-state business only; but have it understood that if the railroads cannot and will not play fair, then "Uncle Sam" not only can, but will, step in and assume the control.

In this hour of victory, let us assume the attitude of President Lincoln—"With malice toward none, with charity for all." Let Washington set the example for the rest of us to follow and give those railroads who have earned it a fair chance and a square deal.

And, finally, is it not strange that the man to suggest this plan of five-year control, should be the one who has so recently resigned his office? Casting no reflections on Mr. McAdoo, what are his motives, and why should he suggest this plan?

The reason has not yet become apparent.

CHARLES E. FISHER.

Railroad Policy Discussed by Walker D. Hines

Assistant to McAdoo Explains Reasons for Desiring Five-Year Extension of Federal Control

DIRECTOR GENERAL MCADOO'S REASONS for proposing an extension of government control of the railroads for five years were explained by Walker D. Hines, assistant director general of railroads, on December 12, at Washington, at the transportation conference called by the railroad committee of the Chamber of Commerce of the United States. Mr. Hines spoke for Mr. McAdoo, who was unable to be present, as follows:

I am here simply to be of any assistance that I can in placing the situation before you and not for the purpose of presenting an argument or an appeal for one course rather than for another. I think you gentlemen, as fully as any set of gentlemen in the country, are in a position to make up your own minds what your policy ought to be and that it is not helpful or desirable for me to argue for one rather than another, but there are certain facts relating to this situation with which the director general is necessarily closely in contact and which he sees very clearly, and being associated with him as I am I have the advantage also of seeing these facts plainly, and I want to present these facts to you so that you may take advantage of them in reaching your conclusions.

Is Remedial Legislation Possible?

I think it is fair to say that a great deal of the business thought of the country is turning towards the idea that the railroads ought to be turned back promptly to private management by the railroad companies with remedial legislation to remove the difficulties under which the business world appreciates the railroads labored under the private control that existed up to December 28, 1917. This plan of a prompt turning back with remedial legislation has been suggested by the railroad executives and, I believe, in a resolution adopted by a meeting of the United States Chamber of Commerce at Atlantic City, and has been suggested in various other quarters representing the sound business thought of the country. It is a most natural suggestion, and it is the remedy to which the business people of the country would be inclined to turn. But what I want to present to you in the first place, is the plain, practical question: Is it possible at this time to get remedial legislation? I think that must underlie a consideration of that proposition because there is no advantage in talking about turning back the railroads with remedial legislation if the conditions are such as to make the remedial legislation impossible.

In facing that question I think we will all concede that there is no crystallization of the thought of the country as to what is the proper remedial legislation. I have given a great deal of thought to the subject and have tried to formulate in my own mind the remedies that ought to be adopted to provide adequate protection for all the elements that are involved in the railroad business—the public which is to be served, the labor which is to be adequately compensated and properly considered in its relations to the operations, and the investors who furnish the capital—and what has impressed me in my thought on this matter is that every point that comes up bristles with doubts and differences of opinion. Everything is debatable.

Take some of the leading points that must be considered in a scheme of remedial legislation. Take the question as to the extent to which there shall be state control or whether there shall be any state control in respect of railroad rates or railroad improvements or railroad service, and we find there are the most pronounced differences of opinion on that sub-

ject. The National Association of Railroad Commissioners, at its recent meeting in Washington, made it very clear that it was opposed to the elimination of state control. A great many other interests affected are strongly in favor of eliminating that control. So on that fundamental point there is a clear-cut issue in respect of which I do not understand the public sentiment has crystallized and concerning which there would be a prolonged debate. Indeed the point is so important and so far-reaching that it would need a prolonged and thorough discussion before a decision would be reached which could be satisfactory to the country.

Take the other question of over-capitalization. A great many people who have given prolonged attention to this subject believe that one of the insurmountable obstacles to satisfactory regulation in the past has been the settled suspicion on the part of a large part of the shipping public and on the part of labor that railroads were heavily over-capitalized, and that all the showings made by the railroad companies as to need for additional revenue were based on false premises because they were based on over-capitalization.

There has been no crystallization of sentiment on the subject, though there have been a great many charges and counter charges in regard to it. I do not believe there can be any effective remedial legislation which does not deal with and dispose of that subject that will confront the Congress on the threshold, in my opinion, of any consideration of a plan for permanent solution of the railroad problem. If it is decided that the question must be dealt with, the question as to how it is to be dealt with remains for solution, and closely connected with that is the question of valuation of the railroads.

A valuation has already been provided for, and is well under way, but has not yet been completed, and there is nothing indicating how the valuation, when completed, shall be applied in dealing with this problem of over-capitalization, although evidently it will have an important relation to that subject.

Take the question of federal incorporation of the railroads. There are a great many people who have studied this subject carefully who are firmly convinced that there can be no adequate solution of private operation without federal incorporation as a substitute for state incorporation. There again we have a question, fundamental in character, which must be met and disposed of and which cannot be disposed of without prolonged consideration.

There is the further question whether it is expedient to continue to have in this country say 100 different railroad companies conducting the public service. At present there are about 180 railroads which are known as Class 1 railroads, that is, which have operating revenues of \$1,000,000 or more per year. Perhaps 100 of them are of definite importance. Perhaps 50 of them would be regarded as railroads of such importance that they could not be eliminated in any plan which contemplated the preservation of the principal railroad organizations in the country. It has been suggested in many quarters that that system of numerous railroads whose lines interlace as the existing railroad lines do should be replaced by a system of a few regional railroad companies upon which there would be representation perhaps of the public as well as of the owners, the idea being that each of those regional railroad companies would own and operate all the railroads in a given region of the country. But the questions relating to that subject are so numerous and per-

plexing that it is confusing to try even to list them. The question of how to bring about the transition of the present ownership by many corporations with a remarkable variety of different capital structures, to new organizations with a new scheme of capitalization, and how to effect the exchange of the securities of the new company for the securities of the old, and as to the basis of the capitalization and as to the basis of the representation upon the board of directors, are questions of the very greatest importance which cannot be decided without the most thorough consideration.

Then that involves the question of the application of the anti-trust laws. Shall the anti-trust laws continue to apply to the railroads as they have in the past? In dealing with that question the attitude of the public must be considered. The public has appeared to have very definite views in the past and yet the question arises whether those views ought to continue to be applied to railroad operation if private operation is to be resumed. But you can readily see that it is a question which cannot be disposed of in a short time.

These are some of the leading problems which will be involved in any proposal for remedial legislation to admit of satisfactory operation under private auspices. I want to leave with you gentlemen the question whether it is possible for this Congress at this time to begin to conduct and complete the necessary investigation on those problems and report bills in the two houses dealing with those problems and have those bills adopted and passed and the differences of the two houses composed, and have a bill emerge which will represent the remedial legislation which is practicable and desirable in order to deal with railroad operation under private management. I don't believe this is going to be practicable in this Congress, which has a little over two working months left, when you take into consideration the necessary interruption of business on account of the Christmas holidays. If it is possible, then, of course, it remains open to endeavor to formulate a plan and get it adopted, but if the director general is right, and undoubtedly he is right, in his conviction that it is not possible, then the question is what are the other courses that are possible, or even theoretically possible?

Should the Roads Be Retained for 21 Months?

The next course that might be said to be possible would be for the President to keep the railroads under federal control up to the maximum limit authorized by the federal control act, which is 21 months after the declaration of peace. That is a subject upon which I think the director general is peculiarly qualified to speak and carry conviction in what he says, because in the last year he has been immediately in touch with the problem of government control, he knows the conditions of the railroad organizations, and he knows what is necessary in order to conduct the government operations of the railroads. I don't think I can do better in discussing that point than to read a brief extract from the letter which the director general sent yesterday to the chairmen of the Senate and House committees on interstate commerce:

As to shortness of time, it is clear to me that the railroads cannot be successfully operated under federal control during the next two years in the face of an automatic transfer to private control at the end of that time or of an earlier relinquishment by proclamation of the President. Every month that passes will bring more clearly to the minds of the officers and employees the fundamental change in management that is impending, and the question as to what that change means to the individual. It is against human nature that there can be complete and single-minded attention to duty under such difficult circumstances. This will be especially true on account of the inevitable discussion as to what ought to be done. Already this discussion is in full swing and its reaction on officers and employees cannot be consistent with the complete concentration upon their daily duties. State railroad commissions, railroad security holders, railroad executives, shippers' organizations and other interests are naturally and properly discussing the subject and proposing various solutions. However desirable the discussion is for the crystallization of public sentiment, it cannot result otherwise than to produce a state of uncertainty and ferment among the vast army of railroad officers and employees who will inevitably feel that they face a rapidly approaching change in management.

No business in the United States so imperatively requires disciplined organization and composed conditions of operation, for officials as well as for employees, as the railroad business. Not only does the safety of the lives of millions of passengers depend upon such disciplined and efficient organization, but the commerce of the country as well. To keep this vast army of officers and employees in a state of uncertainty and ferment for

a period of two years would be harmful in the highest degree to the public interest. It would be impossible to prevent a serious impairment of the morale of the railroad organizations.

I don't think that condition can be too strongly brought before thoughtful men who are trying to find a solution to this problem. It is a condition which will be cumulative in its manifestation. If the President should enter upon the policy of holding the railroads for the 21 months' period these difficulties and doubts would pile up on each other as every month went by. That would be true under any circumstances, even if there were the state of the greatest possible composure in the country, because no man can help thinking about what his personal status is and about what it is going to be, and when a stop-watch is in that way held on government control and the definite date at which the railroads are to be turned back to private control is coming along so rapidly, every man is going to wonder about what is going to happen to him when that time comes. He is going to wonder whether his career will be with the old railroad corporation or whether it is going to be with the new corporation or whether it is going to be with the government. It is no reflection on a man, because it would be against human nature if it were not true.

But we are not going to have a period of that absolute political composure. The period to a large extent will be coincident with a presidential campaign. There will be the conditions of political agitation in which the railroad question will be in issue and the conduct of these operations will be in issue. Under these circumstances, and from my contact with these men who are running the railroads, it seems to me perfectly clear that this question of morale is going to be put in the most serious jeopardy if the President should enter upon the policy of keeping the railroads for the 21 months' period without any assurance that there will be any solution either during that time or immediately at the end of that time, so that we would have the situation of a definite conviction that there will be a change of management at the end of the 21 months' period, and then in all probability that another change of management will take place at such indefinite period thereafter as remedial legislation is secured. Under these circumstances it is evident from the President's message to Congress that he has reached the conclusion, and from the director general's letter, that he has reached the conclusion that it is far better for the morale of the railroads to turn them back immediately to private control than to hold them in that condition of suspense and uncertainty for 21 months after the war.

The Problem of Capital Expenditures

But there is another phase of the very greatest importance. Everyone who has studied this subject realizes that the railroads of this country are not complete and never can be completed. The railroads must continue to grow to meet the demands of traffic and increasing demands of the public for adequate service. Therefore the question of capital expenditures is one of paramount importance.

Generally speaking, all the railroads in this country ought to have the most thoughtful continuous study and planning in order to bring them up so they will be abreast of the demands of the public and in order to keep them abreast of the demands of the public. How are we situated in that matter with a date fixed 21 months after peace for the railroads to go back to private control? In the first place, we have the consideration that no improvement of very great importance can be planned and brought to completion within much less than two years, and perhaps would require longer. It is evident, therefore, that the continuance of that sort of control, subject to that sort of termination, means practical paralysis of the development of additional railroad facilities. The railroad administration cannot satisfactorily plan to carry out improvements to meet peace conditions when, by the

time those improvements are completed, the railroads presumably will go back into other hands, and perhaps under other conditions. The railroad corporations in the nature of things cannot be expected to give their hearty co-operation in working out a scheme of improvements which will not be completed in time for the railroad administration, which plans them, to use them, and which will be completed at the time there may be a change back to private management when the improvements will seem to be less appropriate than under a unified form of control. To my mind that embarrassment of carrying out any comprehensive program of capital expenditures is of itself a sufficient reason for reaching the conclusion that as between the two courses of holding the railroads for 21 months and of letting them go promptly, the latter is the course to adopt, so that the railroad companies can take hold of this matter of carrying out improvements and use their own judgment as to what shall be done rather than have a situation where nobody is free to use judgment on the subject except the negative judgment of doing nothing.

But when we come to the matter of necessary and urgent capital expenditures, things that must be done and obviously ought to be done, the question is how they can be done satisfactorily by the railroad administration, with this limit staring it in the face, and also the question as to where the money is to come from to do them. It will require an additional appropriation from Congress if federal control is continued for any considerable part of the 21 months. Conditions are not favorable for getting a satisfactory appropriation, it seems to me, either in this Congress or the next. We don't know exactly what we can do, so it is hard to outline what is needed; it is hard to fix the amount of the appropriation—if you fix it large enough to meet all needs it may be so large as to make Congress unwilling to lend it—if you fix it so small as to satisfy Congress, it may be so small as to hamper you throughout the period. This question as to capital expenditures, it seems to me, is of itself a sufficient reason for refraining from holding on to the railroads for 21 months, and for adopting instead the plan of a very early return. That is the plan that is emphasized in the director general's letter as the thing that must be done, and also is what the President indicated in his message.

The director general emphasized in his letters that that must be done unless, and here is the only alternative the director general is able to see and the one he presents for consideration, that federal control be extended for five years with an adequate provision for making these capital expenditures, thereby continuing railroad operation under conditions which will not affect the morale unfavorably, which will restore a satisfactory degree of confidence in a reasonable permanency of management, and which will enable important improvements to go forward without interruption until such time as the country will have had an opportunity to crystallize its thoughts as to what ought to be done with this railroad problem as a permanent solution.

The thing above all that I want to emphasize to you gentlemen is that the real choice is between those two propositions. Undoubtedly a great many people whose judgment is sound on this subject would far prefer to turn the railroads back with adequate remedial legislation. But that is not a practicable thing. The 21 months' solution is not a practicable thing, and will simply pile up conditions which are unsatisfactory now and which would grow increasingly unsatisfactory in the 21 months, so that the practical choice is this: Is it better for the railroads to go back to private control promptly under the old conditions or is it better to have a five-year extension of the present control with provision for the continuing improvement of the properties, and with conditions which will make for a satisfactory morale in the railroad organization. The director general, in his letter to

the chairmen of the committees, summarized that issue in this way. He said:

Those who may oppose an extension of five years should face the situation squarely and acknowledge that they prefer the immediate return of the railroads to private control under the old conditions without remedial legislation. It is idle to talk of a return to private control under legislation which will cure the defects of the existing laws. There is neither time nor opportunity for such legislation at present. It is impossible and hopeless for the government to attempt the operation of the railroads for twenty-one months after peace under the present law. Therefore, the country should squarely face the condition that the railroads must promptly go back into private control with all existing legal difficulties unless the only practical alternative, viz., an extension of time, is promptly granted.

As I view this situation, we are inevitably forced to a choice between those two alternatives because no others are available as a practical matter. Now, as between those two alternatives, I do not wish to argue for one rather than the other, but, as I said, I feel when the conditions as we see them are presented to you by us we have done all we can helpfully do, and I don't want to argue for or against either of those methods.

Advantages of Federal Control

However, I do want to make two or three other suggestions which helped to make the matter clear in my mind, and I have thought they might be helpful to you gentlemen also, and that is, when considering the subject of a period of federal control under peace conditions it is important not to attribute to federal control under those conditions the burdensome requirements which were incidental to war conditions. Every country at war in Europe was subjected to vastly greater disturbance in transportation conditions during the war than we were. In fact, our inconveniences in transportation were luxuries beyond imagination as compared with the transportation inconveniences which the war brought on Europe, and yet the inconveniences which existed here were largely inconveniences incident to war rather than those incident to federal control, and but for federal control those inconveniences would have been worse than they were, in my opinion. I think the very natural restiveness the country has shown as to the inconveniences of the last 12 months has operated in an unconscious sort of way to constitute in the minds of many of the public the picture of federal control, whereas it ought to constitute the picture of war conditions and war necessities. So that what the choice, as I look at it as now presented, is not between the sort of burdensome requirements that existed the last year on the one hand and on the other the return to private control, but it is a form of federal control adapted to peace conditions of which there has been so far no test on the one hand, and return to private control on the other hand.

Looking at the private control, I think it is important for us to try to remember what has happened in the past, and not look at private control as something in the abstract. Take for example the fall of 1916. I made a trip out through the West. Through the eastern half of Kansas, the side tracks were filled with loaded freight cars destined to the Atlantic seaboard that could not move beyond that point because of the congestion of freight at all points, Chicago and east. There was almost a paralysis of transportation. There was the greatest waste of the available car supply, the greatest impediment to the movement of traffic, and as you came east and passed the great railroad terminals, you saw a perfect sea of freight cars that could not be gotten rid of. It was hard to handle them because of the great quantity, it was hard to get trains in and out of the yards. Those conditions were due to a lack of unified control of railroad operation. It may be they can be avoided under private management, but we then had the condition of private management, and every inducement on the part of the railroads to avoid that congestion, and yet we had the congestion.

Now take this fall: there has been no such condition. The railroad yards have been free except where special and temporary conditions have brought about temporary congestion,

but the contrast now as compared with then is of the most striking character. Certainly unified control does admit and has produced in fact a movement of freight instead of a congestion of freight. It has enabled the railroad administration to apply the plan of controlling the traffic at the source, and of preventing the loading of traffic when it cannot be gotten rid of. Under private management and under the competitive conditions which seemed inseparable from private control in the past when the railroads were not free to make a binding agreement to remove those conditions, generally speaking, when a shipper was given a car, it could be loaded and thrown into the channel of traffic whether it could reach or be disposed of at destination or not, and that is the way the difficulties arose. Even under war conditions, and with the imperative necessity of giving preference to a vast amount of war traffic, congestion has been avoided. Undoubtedly a great many shippers have been interfered with because of this condition, but if they had been able to ship at the time they wanted to, the transportation condition of the country as a whole would have been vastly worse. This is a large matter which affects the whole country. It affects the economy of transportation and the economy of industry whether the transportation is rendered almost impracticable by congestion, which seems to be the logical outcome of competitive conditions or whether it is better to have a unified plan which will avoid these conditions.

Looking at the labor situation, we can recall the conditions which existed prior to federal control—the inability of the railroad companies and the representatives of labor to agree on a program, and the menace that existed during so much of the time as to what was going to happen to transportation if there was no agreement. In the absence of some remedial legislation the question is whether we would go back immediately to a corresponding menace if private control would be resumed at the present time. This is a very important thing to consider.

Looking at the matter from the investor's standpoint, the conditions toward the end of private control were most embarrassing from the standpoint of the investors. They felt their condition was exceedingly critical and if federal control had not supervened, and especially in view of the unprecedented winter, it is obvious that many railroad companies which ordinarily could meet their requirements would have gone into bankruptcy. Now if the railroad companies go back into private control without remedial legislation, a question to consider is whether there will be a repetition of these conditions of uncertainty and embarrassment due to the many different and uncontrollable factors which seemed to be operating together in the reduction of net income.

I think these considerations are useful in dealing with this question as to what is the better choice as between an immediate return to private management without remedial legislation on the one hand and an extension of federal control for a period of five years on the other hand. The difficulties as to shipping in the large sense of getting traffic of the country moved to destination, the difficulties as to labor, the difficulties as to investors, I think all need to be carefully weighed. I believe when I have laid before you my own views of the facts bearing on the situation, I have rendered what service I can without attempting to urge you to adopt one course rather than another.

Replies to Questions

At the conclusion of Mr. Hines' address, he was asked to reply to questions. The questions and answers follow:

Q. What, in your opinion, is the amount of debt or debts of the railroads today to the government? In what position would they be to meet those debts if returned at once? Would they be able to finance themselves for additions and betterments after taking care of government debts?

A. I don't see that the answer to this question enlightens the issue as I see it, because whatever difficulty the railroads will have in dealing with that situation now, they will have in increased measure 21 months after the declaration of peace. The debts will be larger and it seems to me the difficulties will be greater, and the railroad organizations will be in less satisfactory condition to be drawn together to resume the private operation. As to the precise thing you put before me, while I don't think, however it is answered, it has a bearing upon the choice between a prompt return and an extension of time, I take it the policy of the railroad administration will be to endeavor to put those obligations on such a basis that they will not have to be paid in cash at once. My own opinion is that it can be better taken care of now than if there came an automatic termination 21 months after peace.

Q. As I understand it, there are two propositions advanced; first, letting the railroads go back to private control immediately, or, second, an extension of federal control for five years. Suppose Congress should decide during the next two months to take over the railroads (which if it did would set at rest the minds of the public). What objections do you see to that course being pursued?

A. I understand your suggestion is that Congress would decide on outright government ownership and operation. Of course, if Congress decides on that course, that will solve the whole thing, and if Congress wants to do it, I have no objection to offer to it. I did not mention that in the instances I spoke of, but my thought about it is that, considering the far-reaching character of that step and the definite cleavage of sentiment there seems to be on it, Congress would be unable to reach that point in two months' discussion. However, if it did, that, of course, would solve the whole question.

Q. Mr. Hines' objection to the continuance of the present plan is based primarily on these two points—that we can't have the proper capital extensions, and will also have embarrassment on account of the morale of the organization. Does Mr. Hines contemplate during the five-year extension effectual completion of the program of capital extensions so that they will all virtually stop so far as the government is concerned at the expiration of the five years, and if on the other hand the program of capital extension and provision for necessary facilities is a continuous one, would not in some measure the very same objection and difficulties which were contemplated by Mr. Hines as to the 21-month limit, pertain also to the five-year limit? Would there not be very much the same kind of a danger with reference to the morale of the railways so far as all those methods and extensions are concerned which might be discussed as necessary within one or two years before the five-year limit and which would thereupon follow? I should like to have Mr. Hines explain to us clearly as to why the five-year limit would do away with all the difficulties which are no doubt connected with the 21-month limit.

A. I have a perfectly clear conception in my own mind as to that distinction and, speaking purely personally, it seems to me the explanation is convincing. My view is that if a five-year extension be granted this would be the situation: that this subject, upon which the thought of the country has not crystallized, will crystallize as the result of the ensuing discussion in the next two years. I should think inevitably it would be a prominent subject in the presidential campaign as to how it ought to be settled, and I should say that within one year after the new President and the new Congress came in, which will come in representing the crystallization of the thought of the country, a permanent solution of the question would be reached, so that by the time we get as near the end of federal control as we are now, we will have had two years' discussion by the public and one year's discussion

by the President and Congress, and that then a solution could be adopted which might very readily result in the immediate transfer to the new conditions, whatever they are. The difference is that now we are at the beginning of the two-year period without a possibility of preparation, and then we would be at the beginning of the two-year period with a three-year period of thorough preparation.

Q. The alternative, as I understand, is a speedy reversion to private control without remedial legislation or the continuance of federal control for five years. Why isn't it a possibility that there should be a speedy reversion and speedy legislation developed immediately after the reversion?

A. It seems to me if that result follows it will be a more satisfactory solution than I hope for, but that does not affect a decision now on what needs to be done at the moment. The question now is what shall be done, and it seems to me that we ought all to face it on the theory that if there is not an extension of time there must be an immediate relinquishment. Now if there is that relinquishment and then there ensues very promptly a permanent solution, that is a thing to be hoped for, but it does not have any effect on our decision as between extension or relinquishment. I think it is possible that that may come about. On the other hand it may be suggested that control ought to be continued in the hope that in the 21 months there would be such a solution; but the difficulty about that is the complete uncertainty on that proposition. Every month that goes by makes the uncertainty greater and makes the whole state of mind of the staff and employees more uncertain, and all the time we are running against this impasse in the matter of improvements. Coming back to the precise question, I think it would help to ameliorate the situation if immediately after relinquishment there should be a permanent solution adopted. However, that does not affect, as I see it, the necessity for the prompt relinquishment.

Q. The director general suggests that provision be made for a capital expenditure of around \$500,000,000 per year, perhaps more, for betterments or on capital account. Would not the difficulties of financing, which would confront the railroads if relinquished now, be very greatly increased at the end of five years should the government have expended on capital account five or more hundred million dollars per year for the period of five years?

A. The situation is that if the roads go back into private control within the next few months, there being no extension of time, they have to care for the advances already made and it will be the desire of the government to ameliorate that condition as far as practicable, so that they will not be confronted with an immediate payment. If they are held 21 months and go back also without remedial legislation, they will have a great deal more difficulty in financing and will still be subject to all the embarrassments which confronted the investors at the beginning of federal control. My thought is that before the end of the five-year period there will have come about a solution of this problem, and a definite basis will have been established to sustain railroad credit. If the railroads are taken over by the government the debt will be taken care of in that way. If a new scheme of private ownership is formulated, the financing of all these obligations can be done in the light of that improved condition, so that if we have this extension of time with opportunity for a permanent solution before the end of that time I think the corporations will be better able to take care of the capital expenditures made during that period than they will be if they go back without a solution and without an improvement of the basis of their credit.

Q. If a definite program were laid out that trended admittedly toward private control or admittedly toward permanent government ownership then operations could be shaped to that end. But you are not carrying out a program toward a final plan which the country would accept as desir-

able, so will not the termination of the period bring up again at that time all the questions that now arise? I understand the difficulty of making a statement at this time, because the public opinion has not crystallized, but would not all of the operations during the extended period of five years be more or less in doubt unless there was a definite end to which we are driving?

A. In answer to your question, in the first place; that is, to the extent that your position is well taken, of course it is an argument for the immediate relinquishment of the railroads. I don't think, however, that your position altogether covers the case, for this reason. As to the matter of morale of the organization, as I have said before, I think a solution will have taken place so much in advance of the end of the five-year period that there would be avoided the intense uncertainty existing during the 21 months' period. As to capital expenditures, a very large part will be in connection with improved terminals. I believe we can fairly assume that the opinion of the American public, whether it wants government ownership or private ownership, does want consolidated terminals. The public doesn't want the waste of capital and space and the waste of time involved in having several railroad systems have unnecessarily separated terminals in great cities. A very large part of these capital expenditures for terminals which ought to be provided could be provided without in any way having any bearing one way or other on the question of the ultimate solution. Another important part of capital expenditures is for the improvement of the great main lines to increase their capacity and efficiency; these, too, could be made equally well whether private ownership or public ownership be the outcome. As to capital expenditures, therefore, I do not believe the absence at the outset of a definite decision as to the ultimate decision would create difficulty on the question of the morale of the organization. I think the difference is that now we are without time for preparation and are in a condition where the uncertain period of not exceeding two years of control will be a period of discussion and ferment and uncertainty and with a five-year extension there will be certainty and time for preparation and composure and for a permanent solution.

Q. Isn't the question that of who is going to carry the burden of management during the period of disadvantage—that somebody's got to carry it. Whoever manages the railroads during the period of uncertainty must manage them under a disadvantage, and you picture the disadvantage of private management and you picture the disadvantage of government management. What will lend itself best to clear thinking and an ultimate right settlement, whether they are held by the government on the one hand or by private owners on the other; in other words, the voting public is going to hold the management responsible for whatever goes wrong. What will lend itself best to clear public thinking and whether or not, if the government does carry this burden, anybody can think clearly about it. The public thinks that the railroad is responsible for the transportation disturbances due to the war. Will they not think they are responsible for every kind of disturbance growing out of this disadvantage?

A. It seems to me this is a very pertinent question bearing on which of these two courses is the better. There are two elements involved. One is the question of service rendered by the railroads to the public and the other the question of clear thinking on the ultimate solution of the problem. Relative to service, the question is whether the railroads going back under existing conditions without any remedial legislation will be able to give as good service and the public is greatly interested in that. I do not believe service under federal control can be satisfactory to the public during the dubious and rapidly vanishing 21 months, in the midst of constant speculation as to what is so soon to happen to the management and therefore to the individual, and in the midst

The Officer

(Including the Names of the Federal and General Managers)

Eastern Region

New England District, J. H. Hustis, District Director, Boston, Mass.

Railroad
Bangor & Aroostook

Boston & Albany
Boston & Maine
Boston Terminal

Central Vermont

Central New England
G. T. Lines in N. E.

Maine Central

New York Connecting
N. Y., New Haven & Hartford
Rutland Railroad

Federal Manager*
P. R. Todd (G. M.)

B. M. Biscoe
B. R. Pollock
E. J. Pearson

J. W. Wardlaw (G.
M.)

E. J. Pearson
L. G. Coleman (G.
M.)

D. C. Douglass
(G. M.)

E. J. Pearson
E. J. Pearson
G. T. Jarvis (G. M.)

Headquarters
Bangor, Me.

Boston, Mass.
Boston, Mass.

New Haven, Ct.

St. Albans, Vt.

New Haven, Ct.

Portland, Me.

Portland, Me.

New Haven, Ct.

New Haven, Ct.

Rutland, Vt.

Chief Purchasing
Officer
C. D. Baldwin

F. A. Ryer
H. J. Saabye

G. G. Yeomans, Bos-
ton, Mass.

H. M. Dewart

G. G. Yeomans

G. G. Yeomans

J. E. Kilborn

Chief Mechanical
Officer
H. Shoemaker, Der-
by, Me.

R. D. Smith
C. H. Wiggin

A. MacIver, Boston

W. Gillespie

H. C. Oviatt

J. Hay

P. M. Hammatt

H. C. Oviatt

H. C. Oviatt

H. Montgomery

Chief Engineer
M. Burpee, Houlton,
Me.

F. B. Freeman
A. B. Cortell

A. S. Tuttle, Boston

P. D. Fitzpatrick

E. Gagel

C. B. Weiss

B. T. Wheeler

E. Gagel

E. Gagel

J. G. Shillinger

Railroad

New York, Chicago & St. Louis
New York, Ontario & Western

Pere Marquette
Pittsburgh & Shawmut

Toledo Terminal
Ulster & Delaware
Wabash

Railroad

Atlantic City
Baltimore & New York
Baltimore & Ohio, Lines East
Baltimore & Ohio properties and
Piers, Manhattan Island
Baltimore Terminal District
Bessemer & L. Erie

Buffalo & Susquehanna

Central of New Jersey

Coal & Coke
Connecting Terminal R. R.
(Buffalo, N. Y.)
Cumberland & Pennsylvania
Cumberland Valley
Gettysburg & Harrisburg
Hudson & Manhattan
Huntingdon & Broad Top
Mountain
Jersey Shore Terminal District
Lake Erie & Eastern
Long Island
Monongahela
New York & Long Branch

N. Y., Philadelphia & Norfolk
Penn. R. R., Eastern Lines
Philadelphia & Reading
Pittsburgh & Lake Erie
Pittsburgh & West Virginia
Philadelphia Belt Line (north
of Port Richmond yard)
Philadelphia Belt Line (south
of Port Richmond yard)
Philadelphia Terminal District
Port Reading
Staten Island Rapid Transit
Washington Terminal District

West Side Belt
Western Maryland
West Jersey & Seashore
Wheeling Terminal Railroad

Ohio Indiana District,

Baltimore & Ohio (West of
Parkersburg & Pittsburgh)
Cincinnati, Lebanon & Northern

Lorain, Ashland & Southern

Ohio River & Western

Pitts., Chartiers & Youghiogeny

Penn. Lines West of Pittsburgh

Railroad

Ashland Coal & Iron
Chesapeake & Ohio
Chesapeake & Ohio Northern
New River, Holston & Western
Norfolk & Portsmouth Belt Line
Norfolk & Western
Norfolk Terminal
Sandy Valley & Elkhorn
Virginia-Carolina
Virginian

Lines Reporting Direct to Eastern Regional Director

Ann Arbor

Buffalo, Rochester & Pittsburgh

Buffalo Creek

Central New York Southern
Chicago & Erie

Chicago, Kalamazoo & Saginaw

Delaware & Hudson

Delaware, Lacka. & Western

Detroit & Mackinac

Detroit, Grand Haven & Mil.
Detroit & Toledo Shore Line
Detroit, Bay City & Western
Erie Railroad

Grand Trunk, West Lines
Greenwich & Johnsville

Lehigh & Hudson River

Lehigh & New England

Lehigh Valley

Lake Erie & Pittsburgh

Michigan Central

N. Y., Susquehanna & Western

New York Central

F. H. Alfred

T. F. Brennan

F. L. Blendinger

P. E. Crowley

A. J. Stone

E. D. Bronner

F. P. Gutelius

E. M. Rine

F. H. Alfred

F. H. Alfred

F. H. Alfred

A. J. Stone

F. H. Alfred

F. P. P. Gutelius

Morris Rutherford
(G. M.)

R. H. Wilbur (G. M.)

F. L. Blendinger

P. E. Crowley

E. D. Bronner

A. J. Stone

P. E. Crowley

Detroit, Mich.

Rochester, N. Y.

New York

New York

Detroit, Mich.

Detroit, Mich.

Detroit, Mich.

New York

New York

Detroit, Mich.

Detroit, Mich.

Detroit, Mich.

Albany, N. Y.

Warwick, N. Y.

Philadelphia, Pa.

New York

New York

Detroit, Mich.

New York

New York

W. C. Atherton

W. R. Shoop

H. J. McQuade

W. C. Bower

W. R. Collins

B. A. Aikens

J. White Sprong

C. C. Hubbell

W. C. Atherton, De-
troit

W. C. Atherton

W. C. Atherton

W. R. Collins

A. M. Holmes

Edward L. Hughes

H. J. McQuade

G. R. Ingersoll, Cleve-
land, O.

B. A. Aikens

W. R. Collins

S. B. Wight, N. Y.

G. R. Ingersoll, Cleve-
land, O.

J. E. Osmer, Owosso,
Mich.

F. J. Harrison, Du-
Bois, Pa.

F. N. Hibbits, Beth-
lehem, Pa.

John Howard

Wm. Schlaflage, Mead-
ville, Pa.

W. H. Flynn (S. M.
P.)

T. J. Burns (S. R. S.)

R. W. Barrett (M.
C. B.)

J. H. Manning (S.
M. P.), Watervliet,
N. Y.

H. C. Manchester,
Scranton, Pa.

H. J. Thomas, East
Tawas, Mich.

B. J. Farr

B. J. Farr

R. J. Williams

Wm. Schlaflage, Mead-
ville, Pa.

B. J. Farr

R. W. Barrett (M.
C. B.)

J. H. Manning (S.
M. P.), Watervliet,
N. Y.

R. T. Jaynes

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R. L. Wyman, Pen-
Argyl, Pa.

F. N. Hibbits, Beth-
lehem, Pa.

D. R. MacBain,
Cleveland, O.

W. F. Flynn (S. M.
P.)

T. J. Burns (S. R. S.)

Wm. Schlaflage, Mead-
ville, Pa.

John Howard, N. Y.

D. R. MacBain,
Cleveland, O.

R. S. Parsons

G. W. Kittredge,
New York

G. C. Cleveland,
Cleveland, O.

R. S. Parsons

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New York

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New York

G. C. Cleveland,
Cleveland, O.

G. W. Kittredge,
New York

G. C. Cleveland,
Cleveland, O.

G. W. Kittredge

The Officers of the Railroads Under Federal Control

Federal and General Managers, the Chief Purchasing Officers, the Chief Mechanical Officers, the Chief Engineers

Supplement No. 2 to the

Railway Age

of December 20, 1918

Railroad	Federal Manager*	Headquarters	Chief Purchasing Officer	Chief Mechanical Officer	Chief Engineer
New York, Chicago & St. Louis	J. J. Bernet	Cleveland, O.	W. P. Dittoe	A. R. Ayers	E. E. Hart
New York, Ontario & Western	J. H. Nuelle	Middletown, N. Y.	C. A. Draper	B. P. Flory, Middletown, N. Y.	W. C. Heidenthal, Middletown, N. Y.
Pere Marquette	P. H. Alfred	Detroit, Mich.	W. C. Atherton	R. J. Williams	J. Tuthill
Pittsburgh & Shawmut	A. J. Stone	New York	W. R. Collins	Wm. Schlafege, Meadowville, Pa.	R. S. Parsons
Toledo Terminal	A. B. Newell (G. M.)	Toledo, O.	A. B. Newell	J. Schlageter	Joseph Wanbecq
Ulster & Delaware	R. O'Sullivan (G. M.)	Kingston, N. Y.	Z. P. Boice	M. R. Coutant	A. O. Cunningham, St. Louis
Wabash	R. E. Taussig	St. Louis, Mo.	T. J. Frier, St. Louis, Mo.	E. F. Needham, Decatur, Ill.	

Railroad	Federal Manager*	Headquarters	Chief Purchasing Officer	Chief Mechanical Officer	Chief Engineer
Atlantic City	C. H. Ewing	Philadelphia, Pa.	C. B. Williams	I. A. Seiders	S. T. Wagner
Baltimore & New York	C. H. Ewing	Philadelphia, Pa.	W. S. Galloway	J. T. Carroll	H. A. Lane
Baltimore & Ohio, Lines East	A. W. Thompson	Baltimore, Md.	.....	.....	.....
Baltimore & Ohio properties and Piers, Manhattan Island	C. H. Ewing	Philadelphia, Pa.	.....	.....	.....
Baltimore Terminal District	C. A. Phelan (T. M.)	Baltimore, Md.	W. A. Parker, Pittsburgh	G. M. Gray, Greenville, Pa.	H. T. Porter, Greenville, Pa.
Bessemer & L. Erie	E. H. Utley (G. M.)	Pittsburgh, Pa.	E. J. Urtel, Buffalo, N. Y.	T. J. Nanney, Galeson, Pa.	.....
Buffalo & Susquehanna	A. M. Darlow (G. M.)	Buffalo, N. Y.	C. B. Williams, Philadelphia	C. E. Chambers, Jersey City	A. E. Owen, New York
Central of New Jersey	C. H. Ewing	Philadelphia, Pa.	W. S. Galloway	J. T. Carroll	H. A. Lane
Coal & Coke	A. W. Thompson	Baltimore, Md.	S. Porcher	J. T. Wallis	A. C. Shand
Connecting Terminal R. R. (Buffalo, N. Y.)	Elisha Lee	Philadelphia, Pa.	.....	.....	.....
Cumberland & Pennsylvania	A. W. Thompson	Baltimore, Md.	W. S. Galloway	J. T. Carroll	H. A. Lane
Cumberland Valley	A. W. Thompson	Baltimore, Md.	W. S. Galloway	J. T. Carroll	H. A. Lane
Gettysburg & Harrisburg	A. W. Thompson	Baltimore, Md.	W. S. Galloway	J. T. Carroll	J. V. Davies
Hudson & Manhattan	K. B. Conger (G. M.)	New York	H. W. Webber	C. S. Clump	.....
Huntingdon & Broad Top Mountain	Elisha Lee	Philadelphia, Pa.	.....	.....	.....
Jersey Shore Terminal District	J. J. Mantell (T. M.)	Jersey City, N. J.	S. Porcher	J. T. Wallis	A. C. Shand
Lake Erie & Eastern	J. B. Yohe (G. M.)	Pittsburgh, Pa.	.....	.....	.....
Long Island	Ralph Peters	New York	C. S. White	L. H. Turner	J. A. Atwood
Monongahela	J. B. Yohe (G. M.)	Pittsburgh, Pa.	C. B. Williams, Philadelphia	G. C. Bishop	L. V. Morris
New York & Long Branch	C. H. Ewing	Philadelphia, Pa.	Samuel Porcher	L. H. Turner	J. A. Atwood
N. Y., Philadelphia & Norfolk	Elisha Lee	Philadelphia, Pa.	S. Porcher	C. E. Chambers, Jersey City	A. E. Owen, N. Y.
Penn. R. R., Eastern Lines	C. H. Ewing	Philadelphia, Pa.	C. B. Williams	J. T. Wallis	A. C. Shand
Philadelphia & Reading	J. B. Yohe (G. M.)	Pittsburgh, Pa.	C. S. White	I. A. Seiders	A. C. Shand
Pittsburgh & Lake Erie	J. B. Yohe (G. M.)	Pittsburgh, Pa.	C. S. White	L. H. Turner	S. T. Wagner
Pittsburgh & West Virginia	J. B. Yohe (G. M.)	Pittsburgh, Pa.	C. S. White	L. H. Turner	J. A. Atwood
Philadelphia Belt Line (north of Port Richmond yard)	C. H. Ewing	Philadelphia, Pa.	.....	.....	.....
Philadelphia Belt Line (south of Port Richmond yard)	E. J. Cleave (T. M.)	Philadelphia, Pa.	S. Porcher	J. T. Wallis	H. H. Temple
Philadelphia Terminal District	C. H. Ewing	Philadelphia, Pa.	.....	.....	.....
Port Reading	C. H. Ewing	Philadelphia, Pa.	C. B. Williams	I. A. Seiders	.....
Staten Island Rapid Transit	W. B. Warrington (T. M.)	Philadelphia, Pa.	C. B. Williams	W. A. Deems	.....
Washington Terminal District	J. B. Yohe (G. M.)	Wash., D. C.	.....	.....	.....
West Side Belt	E. J. Cleave (T. M.)	Philadelphia, Pa.	S. Porcher	J. T. Wallis	A. C. Shand
Western Maryland	C. H. Ewing	Philadelphia, Pa.	.....	.....	.....
West Jersey & Seashore	C. H. Ewing	Philadelphia, Pa.	C. B. Williams	.....	.....
Wheeling Terminal Railroad	W. B. Warrington (T. M.)	Baltimore, Md.	C. S. White	L. H. Turner	H. H. Temple
	J. B. Yohe (G. M.)	Baltimore, Md.	W. S. Galloway	J. T. Carroll	H. A. Lane
	A. W. Thompson	Philadelphia, Pa.	S. Porcher	J. T. Wallis	A. C. Shand
	Elisha Lee	Baltimore, Md.	W. S. Galloway	J. T. Carroll	H. A. Lane
	A. W. Thompson	Baltimore, Md.	.....	.....	.....

Ohio Indiana District, Lines in Allegheny Region Reporting to	H. A. Worcester, District Director, Cincinnati, Ohio
Baltimore & Ohio (West of Parkersburg & Pittsburgh)	C. W. Galloway
Cincinnati, Lebanon & Northern	G. L. Peck

Railroad	Federal Manager*	Headquarters	Chief Purchasing Officer	Chief Mechanical Officer	Chief Engineer
Lorain, Ashland & Southern	G. L. Peck	Pittsburgh, Pa.	W. G. Phelps	P. F. Smith, Jr.	.....
Ohio River & Western	G. L. Peck	Pittsburgh, Pa.	W. G. Phelps	P. F. Smith, Jr.	.....
Pitts., Chartiers & Youghiogeny	G. L. Peck	Pittsburgh, Pa.	W. G. Phelps	P. F. Smith, Jr.	.....
Penn. Lines West of Pittsburgh	G. L. Peck	Pittsburgh, Pa.	W. G. Phelps	P. F. Smith, Jr.	.....

Railroad	Federal Manager*	Headquarters	Chief Purchasing Officer	Chief Mechanical Officer	Chief Engineer
Ashland Coal & Iron	Geo. W. Stevens	Richmond, Va.	E. W. Grice	J. R. Gould	F. I. Cabell
Chesapeake & Ohio	Geo. W. Stevens	Richmond, Va.	E. W. Grice	J. R. Gould	F. I. Cabell
Chesapeake & Ohio Northern	Geo. W. Stevens	Richmond, Va.	E. W. Grice	J. R. Gould	F. I. Cabell
New River, Holston & Western	A. C. Needles	Roanoke, Va.	J. H. Clemmitt	A. Kearney	J. E. Crawford
Norfolk & Portsmouth Belt Line	C. H. Hix	Norfolk, Va.	G. S. Shafer	.....	G. S. Shafer
Norfolk & Western	A. C. Needles	Roanoke, Va.	J. H. Clemmitt	A. Kearney	J. E. Crawford
Norfolk Terminal	C. H. Hix	Norfolk, Va.	G. S. Shafer	.....	.....
Sandy Valley & Elkhorn	C. H. Hix	Richmond, Va.	E. W. Grice	J. R. Gould	F. I. Cabell
Virginia-Carolina	G. W. Stevens	Roanoke, Va.	J. H. Clemmitt	A. Kearney	J. E. Crawford
Virginian	A. C. Needles	Norfolk, Va.	A. B. Lacy	R. E. Jackson	F. L. Nicholson
	J. H. Young				

Alabama & V.	Blue Ridge
Atlanta & W.	Carolina & N.
Atlanta, Birmingham	Carolina, Clinch
Atlantic Coast	So. Carolina
B. & O. (between Va. and Birmingham)	Central of Georgia
Birmingham	Kinston & C.
	Louisville & N.
	Macon, Dublin
	Mississippi Central
	Nashville, Chattanooga
	Norfolk Southern
	Piedmont & N.
	Richmond, Fredericksburg & St. Louis-San Antonio of Mississippi
	Seaboard Air Line
	Southern Railway
	Tallulah Falls, Tenn. & Cairo
	Tennessee Central
	Union Railroad
	Washington & Western
	Winston-Salem, Yadkin Railroad, Yazoo & Mississippi River
	Ahnapee & Wisconsin
	B. & O. Chicago & North Western
	Belt Railroad
	Camas Prairie
	Chicago & North Western
	Chicago Great Western
	Chicago Heights
	Chicago Junction
	Chicago, Milwaukee, St. Paul & Pacific
	Chicago, Milwaukee, St. Paul & Pacific
	Chicago, Milwaukee, St. Paul & Pacific
	Chicago, Milwaukee, St. Paul & Pacific
	Copper Range
	Duluth, Mississippis
	Duluth & International
	Duluth, Superior
	Elgin, Joliet & Eastern
	Escanaba & Lake Superior
	Farmers & Merchants Bank of Ft. Dodge, Iowa
	Great Northern
	Green Bay & Western
*When T. M.; etc.	

Engineers and Their Headquarters)

Railroad	Federal Manager*	Headquarters	Chief Purchasing Officer
Alabama & Vicksburg	E. H. Coapman	Washington	R. B. Pegram
Atlanta & West Point	E. T. Lamb	Atlanta, Ga.	F. K. Mays
Atlanta, Birmingham & Atlantic	E. T. Lamb	Atlanta, Ga.	F. K. Mays
Atlantic Coast Line	Lyman Delano	Wilmington, N. C.	F. H. Fechtig
B. & O. (between Harrisonburg, Va., and Lexington)	E. H. Coapman	Washington	R. B. Pegram
Birmingham & No. Western	W. L. Mapother	Louisville, Ky.	J. L. Woods, Nashville, Tenn.
Birmingham Belt	L. Kramer	St. Louis, Mo.	G. E. Scott
Blue Ridge	E. H. Coapman	Washington	R. B. Pegram
Carolina & Northwestern	E. H. Coapman	Washington	R. B. Pegram
Carolina, Clinchfield & Ohio	E. H. Coapman	Washington	R. B. Pegram
Carolina, Clinchfield & Ohio of So. Carolina	E. H. Coapman	Washington	R. B. Pegram
Central of Georgia	W. A. Winburn	Savannah, Ga.	J. L. Bennett
Charleston & Western Carolina	E. T. Lamb	Atlanta, Ga.	F. K. Mays
Durham & Southern	W. J. Harahan	Norfolk, Va.	H. C. Pearce
Florida East Coast	J. P. Beckwith	St. Augustine, Fla.	N. W. Mier
Georgia Railroad	E. T. Lamb	Atlanta, Ga.	F. K. Mays
Georgia Southern & Florida Gulf & Ship Island	E. H. Coapman	Atlanta, Ga.	F. K. Mays
Gulf, Mobile & Northern	C. M. Kittle	Chicago	Harvey De Camp, Hattiesburg, Miss.
Hawkinsville & Florida Southern	R. V. Taylor	Mobile, Ala.	J. A. Turner
Illinois Central (So. of Paducah, Ky., and Cairo, Ill.)	E. H. Coapman	Atlanta, Ga.	F. K. Mays
Kentucky & Indiana Terminal	C. M. Kittle	Chicago	A. C. Mann
W. S. Campbell (G. S.)	W. S. Campbell	Louisville, Ky.	B. Y. Heazlitt
Kinston & Carolina	J. H. Young	Norfolk, Va.	L. M. Jones
Louisville & Nashville	W. L. Mapother	Louisville, Ky.	H. T. Shanks
Louisv. Henderson & St. Louis	W. L. Mapother	Louisville, Ky.	H. T. Shanks
Macon, Dublin & Savannah	W. J. Harahan	Norfolk, Va.	J. R. Frink, Macon, Ga.
Mississippi Central	C. M. Kittle	Chicago	Harvey De Camp, Hattiesburg, Miss.
Mobile & Ohio	R. V. Taylor	Mobile, Ala.	J. A. Turner
Nashville, Chatt. & St. Louis	W. L. Mapother	Louisville, Ky.	J. L. Woods, Nashville, Tenn.
New Orleans Great Northern	C. M. Kittle	Chicago	Harvey De Camp, Hattiesburg, Miss.
Norfolk Southern	J. H. Young	Norfolk, Va.	L. M. Jones
Piedmont & Northern	E. H. Coapman	Washington	E. Thomason, Charlotte, N. C.
Rich., Fredericksburg & Potomac	W. D. Duke	Richmond, Va.	R. J. Rouse
St. Louis-San Francisco (East of Mississippi River)	L. Kramer	St. Louis, Mo.	G. E. Scott
Seaboard Air Line	W. J. Harahan	Norfolk, Va.	H. C. Pearce
Southern Railroad System	E. H. Coapman	Washington	R. B. Pegram
Southern R. R. in Mississippi	R. V. Taylor	Mobile, Ala.	J. A. Turner
Tallulah Falls	E. H. Coapman	Washington	R. B. Pegram
Tenn. & Carolina Southern	E. H. Coapman	Washington	R. B. Pegram
Tennessee Central	W. L. Mapother	Louisville, Ky.	J. L. Woods, Nashville, Tenn.
Union Railroad	W. S. Martin (G. S.)	Memphis, Tenn.	S. S. Billings
Washington Southern	W. D. Duke (G. M.)	Richmond, Va.	R. J. Rouse
Western Railroad of Alabama	E. T. Lamb	Atlanta, Ga.	F. K. Mays
Winston-Salem Southbound	Lyman Delano	Wilmington, N. C.	F. H. Fechtig
Yadkin Railroad	E. H. Coapman	Washington	R. B. Pegram
Yazoo & Mississippi Valley	C. M. Kittle	Chicago	A. C. Mann

Southern Region

Headquarters	Chief Purchasing Officer	Chief Mechanical Officer	Chief Engineer
Washington	R. B. Pegram	J. Hainen	E. M. Durham, Jr.
Atlanta, Ga.	F. K. Mays	J. F. Sheahan	L. L. Beall
Atlanta, Ga.	F. K. Mays	J. F. Sheahan	L. L. Beall
Wilmington, N. C.	F. H. Fechtig	Willard Kells	J. E. Willoughby
Washington	R. B. Pegram	J. Hainen	E. M. Durham, Jr.
Louisville, Ky.	J. L. Woods, Nashville, Tenn.	J. J. Sullivan, Nashville, Tenn.	Hunter McDonald
St. Louis, Mo.	G. E. Scott	C. C. Higgins, Springfield, Mo.	Nashville, Tenn.
Washington	R. B. Pegram	J. Hainen	V. K. Hendricks
Washington	R. B. Pegram	J. Hainen	
Washington	R. B. Pegram	J. Hainen	
Washington	R. B. Pegram	J. Hainen	
Savannah, Ga.	R. B. Pegram	J. Hainen	E. M. Durham, Jr.
Atlanta, Ga.	J. L. Bennett	W. H. Fetner	C. K. Lawrence
Norfolk, Va.	F. K. Mays	J. F. Sheahan	L. L. Beall
	H. C. Pearce	B. S. Shaw, Dunn, N. C.	
St. Augustine, Fla.	N. W. Mier	G. A. Miller	E. B. Carter
Atlanta, Ga.	F. K. Mays	J. F. Sheahan	L. L. Beall
Atlanta, Ga.	F. K. Mays	C. G. Goff, Macon, Ga.	L. L. Beall
Chicago	Harvey De Camp, Hattiesburg, Miss.	W. K. Lynn, Gulfport, Miss.	W. H. Gardner, Jr.
Mobile, Ala.	J. A. Turner	B. H. Gray	Hattiesburg, Miss.
Atlanta, Ga.	F. K. Mays	C. G. Goff, Macon, Ga.	B. V. Wright
Chicago	A. C. Mann	R. W. Bell	L. L. Beall
Louisville, Ky.	B. Y. Heazlitt	W. P. McDevitt	
Norfolk, Va.	L. M. Jones	J. W. Sasscer	F. L. Thompson
Louisville, Ky.	H. T. Shanks	C. F. Giles	C. F. Burrell
Louisville, Ky.	H. T. Shanks	F. C. Ferry, Cloverport, Ky.	
Norfolk, Va.	J. R. Frink, Macon, Ga.	W. B. Coombs, Macon, Ga.	F. L. Nicholson
Chicago	Harvey De Camp, Hattiesburg, Miss.	F. Naylor, Hattiesburg, Miss.	W. H. Courtenay
Mobile, Ala.	J. A. Turner	J. J. Thomas	W. S. Moore, Cloverport, Ky.
Louisville, Ky.	J. L. Woods, Nashville, Tenn.	J. J. Sullivan, Nashville, Tenn.	
Chicago	Harvey De Camp, Hattiesburg, Miss.	H. W. Heslin, Bogalusa, La.	
Norfolk, Va.	L. M. Jones	J. W. Sasscer	
Washington	E. Thomason, Charlotte, N. C.	E. Thomason, Charlotte, N. C.	
Richmond, Va.	R. J. Rouse	H. J. Warthen	S. B. Rice
St. Louis, Mo.	G. E. Scott	C. C. Higgins, Springfield, Mo.	V. K. Hendricks
Norfolk, Va.	H. C. Pearce	C. S. Patton, Portsmouth, Va.	W. D. Fauchette
Washington	R. B. Pegram	J. Hainen	E. M. Durham, Jr.
Mobile, Ala.	J. A. Turner	J. J. Thomas	B. A. Wood
Washington	R. B. Pegram	J. Hainen	E. M. Durham, Jr.
Washington	R. B. Pegram	J. Hainen	E. M. Durham, Jr.
Louisville, Ky.	J. L. Woods, Nashville, Tenn.	J. J. Sullivan, Nashville, Tenn.	Hunter McDonald
Memphis, Tenn.	S. S. Billings	R. Smith	Nashville, Tenn.
Richmond, Va.	R. J. Rouse	H. J. Warthen	K. G. Williams
Atlanta, Ga.	F. K. Mays	J. F. Sheahan	S. B. Rice
Wilmington, N. C.	F. H. Fechtig	Willard Kells	L. L. Beall
Washington	R. B. Pegram	J. Hainen	J. E. Willoughby
Chicago	A. C. Mann	R. W. Bell	E. M. Durham, Jr.

*When chief operating officer has a title other than federal manager, it is indicated by initials, as general manager, (G. M.); terminal manager, (T. M.); etc.

Railroad
Indiana Harbor Belt
Kewaunee, Green Bay & West.
Lake Superior Term. & Transfer
Milwaukee (Wis.) Terminals
Mineral Range
Minneapolis & St. Louis
Minneapolis-St. Paul (Minn.)
Terminals
Minneap., St. P. & Sa. Ste Marie
Minnesota Transfer
Northern Pacific
No. Pacific Terminal of Oregon
Oregon Electric
Oregon Trunk
Ore.-Wash. R. R. & Navigation
Pacific Coast
Pierre Rapid City of Northwest.
Port Townsend & Puget Sound
St. Paul Bridge & Terminal
Seattle & Puget Sound Term.
Sioux City (Iowa) Terminals
Southern Pacific (North of Ashland, Ore.)
Spokane, Portland & Seattle
Waterloo, Cedar Falls & Northern
Waupaca-Green Bay
Wyoming & Northwestern

Railroad

Arizona Eastern

Atchison, Topeka & Santa Fe
Chicago & Alton
Chicago & Eastern Illinois
Chicago, Burlington & Quincy
Chicago, Peoria & St. Louis
Chicago, Rock Island & Pacific
(Except St. Louis to Kansas
City line and lines south of
Herington, Kan., and from
Tucumcari, N. M., through El
Reno, Okla., to Memphis,
Tenn., and branches.
Chic., Terre Haute & Southeast.
Colorado & Southern
Denver & Rio Grande
Denver & Salt Lake
El Paso & Southwestern
Evansville & Indianapolis
Illinois Central
Kan. City (Mo. and Kan.) Term.
Los Angeles & Salt Lake
Northwestern Pacific
Ogden (Utah) Terminals
Omaha (Neb.) Terminals
Oregon Short Line
Peoria-Pekin (Ill.) Switch. Dist.
Quincy, Omaha & Kansas City
St. Joseph & Grand Island
Salina Northern
Salt Lake City (Utah) Terminals
Southern Pacific (West of El
Paso, Tex., and Ogden, Utah,
and south of Ashland, Ore.)
Toledo, Peoria & Western
Union Pacific
Wabash (West of St. Louis)
Western Pacific

Railroad

Abilene & Southern

Baton & Southern

Arkansas Central

Arkansas Western

Beaumont, Sour Lake & West.
Chicago, Rock Island & Gulf
Chicago, Rock Island & Pacific
(St. Louis to Kansas City,
Herington to Salina and all
lines south and east of main
line between Herington and
Tucumcari)

Coal Belt Electric
Dallas Tern. Ry. & Union Depot
East St. Louis Belt
East St. Louis & Carondelet
East St. Louis Connecting
East St. Louis Nat. Stock Yards

St. Worth & Denver City

St. Worth & Rio Grande

St. Worth Belt

St. Worth Union Passenger Sta.
Galveston, Harrisburg & San
Antonio

Galves, Houston & Henderson
Galveston Wharf

Federal Manager*

Geo. Hannauer (GM)

F. B. Seymour (GM)

G. R. Huntington

C. O. Bradshaw (TM)

G. R. Huntington

W. H. Bremner

A. W. Trenholm

H. A. Kennedy (TM)

G. R. Huntington

A. W. Trenholm

J. M. Hannaford

J. P. O'Brien

A. J. Davidson

A. J. Davidson

J. P. O'Brien

J. P. O'Brien

S. G. Strickland

H. E. Byram

A. W. Trenholm

J. H. O'Neill (TM)

E. B. McClure (TM)

J. P. O'Brien

A. J. Davidson

S. G. Strickland

F. B. Seymour (GM)

S. G. Strickland

Headquarters

Gibson, Ind.

Green Bay, Wis.

Minneapolis

Milwaukee, Wis.

Minneapolis

Minneapolis

St. Paul, Minn.

St. Paul, Minn.

Minneapolis

St. Paul, Minn.

Portland, Ore.

Portland, Ore.

Portland, Ore.

Portland, Ore.

Wash.

L. S. Carroll

Chicago

Chicago

St. Paul, Minn.

Seattle, Wash.

Sioux City, Iowa

Portland, Ore.

Portland, Ore.

Chicago

Green Bay, Wis.

Chicago

Chief Purchasing Officer

Wm. McMaster, Chi-

ago

H. E. Dutton

E. T. Stone, Min-

neapolis, Minn.

E. T. Stone, Min-

neapolis, Minn.

W. G. Manchester

.....

E. T. Stone

I. Seddon

F. G. Prest

G. W. Saul

R. E. Scott

R. E. Scott

G. W. Saul

O. R. Wood, Seattle,

Wash.

R. Quayle

H. B. Earling (G.M.)

Seattle, Wash.

I. Seddon

.....

F. W. Taylor, San

Francisco, Cal.

R. E. Scott

Frank McDonald,

Waterloo, Ia.

H. E. Dutton

L. S. Carroll

Chief Mechanical Officer

C. B. Nelson, Gibson,

Ind.

C. W. Dieman

T. A. Foque, Min-

neapolis, Minn.

F. A. Foque, Min-

neapolis, Minn.

G. W. Seidel

.....

T. A. Foque

J. Hoban

H. M. Curry

J. S. Martin

J. Dickson

J. Dickson

J. F. Graham

J. F. Graham, Port-

land

R. Quayle

H. B. Earling (G.M.)

Seattle, Wash.

J. Berry

.....

J. F. Graham, Port-

land, Ore.

J. Dickson

J. W. Lamb, Water-

loo, Ia.

C. W. Dieman

R. Quayle

Chief Engineer

O. H. Gersbach, Gib-

son, Ind.

F. S. Halladay

E. A. Whitman

E. R. Lewis, Duluth,

Minn.

J. H. Reinholdt

.....

E. A. Whitman

H. Rettinghouse

H. E. Stevens

S. Murray

A. M. Lupfer

S. Murray

S. Murray, Portland

L. J. Putnam

C. F. Loweth, Chic.

H. Rettinghouse

.....

S. Murray, Portland

A. M. Lupfer

C. F. Reaney, Water-

loo

F. S. Halladay

L. J. Putnam

Central Western Region

Federal Manager*

C. M. Scott

W. B. Storey

W. G. Bierd

W. J. Jackson

C. G. Burnham

W. G. Bierd

Headquarters

Tucson, Ariz.

Chicago

Chicago

Chicago

Chicago

Chicago

Chief Purchasing Officer

F. W. Taylor, San

Francisco

M. J. Collins

J. F. Marshall

J. H. Beggs

L. N. Hopkins

J. F. Marshall

Chief Mechanical Officer

.....

John Purcell

G. W. Seidel

L. S. Kinnaird

F. A. Torrey

J. E. O'Hearne

Chief Engineer

R. L. Drane

C. F. W. Felt

H. T. Douglas

L. C. Hartley

W. L. Breckinridge

H. T. Douglas

Southwestern Region

Federal Manager*

J. S. Pyeatt

A. S. Johnson (T.M.)

A. Robertson

J. A. Edson

W. B. Scott

J. E. Gorman

Headquarters

Dallas, Tex.

St. Louis, Mo.

St. Louis, Mo.

Kansas City, Mo.

Houston, Tex.

Chicago.

Chief Purchasing Officer

J. E. Anderson

W. G. O'Fallon

C. A. How

W. S. Atkinson

N. P. Randolph, New

Orleans, La.

F. D. Reed

Chief Mechanical Officer

F. W. Taylor, Deni-

son, Tex.

J. W. Coulter, East

St. Louis, Ill.

J. E. O'Brien

G. F. Hess, Pitts-

burg, Kan.

J. A. Power

W. J. Tollerton

Chief Engineer

F. Merritt

H. J. Pfeifer

H. R. Carpenter

J. M. Weir

I. A. Cottingham

H. G. Clark

.....

F. Merritt

J. E. Anderson

J. E. Anderson

J. E. Anderson

N. P. Randolph, New

Orleans, La.

R. L. Irwin

N. P. Randolph, New

Orleans, La.

.....

F. Merritt

J. E. McQuillen, Gal-

veston, Tex.

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Federal Manager*	Headquarters	Chief Purchasing Officer	Chief Mechanical Officer	Chief Engineer	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	Wm. Bawden	H. J. Pfeifer	
J. S. Pyeatt	Dallas, Tex.	J. E. Anderson	J. E. McQuillen, Galveston, Tex.	F. Merritt	
J. L. Lancaster	Dallas, Tex.	R. L. Irwin	A. P. Prendergast	E. F. Mitchell	
J. S. Pyeatt	Dallas, Tex.	J. E. Anderson	F. W. Taylor, Denison, Tex.	F. Merritt	
J. S. Pyeatt	Dallas, Tex.	J. E. Anderson	J. E. McQuillen, Galveston, Tex.	F. Merritt	
J. A. Edson	Kansas City, Mo.	W. S. Atkinson	G. F. Hess, Pittsburgh, Kan.	J. M. Weir	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	Wm. Bawden	H. J. Pfeifer	
J. L. Lancaster	Dallas, Tex.	R. L. Irwin	A. P. Prendergast	E. F. Mitchell	
J. S. Pyeatt	Dallas, Tex.	J. E. Anderson	J. E. McQuillen	F. Merritt	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	Wm. Bawden	H. J. Pfeifer	
J. A. Edson	Kansas City, Mo.	W. S. Atkinson	G. F. Hess, Pittsburgh, Kan.	J. M. Weir	
J. A. Edson	Kansas City, Mo.	W. S. Atkinson	G. F. Hess, Pittsburgh, Kan.	J. M. Weir	
L. Kramer	St. Louis, Mo.	G. E. Scott	C. C. Higgins, Springfield, Mo.	V. K. Hendricks	
J. A. Edson	Kansas City, Mo.	W. S. Atkinson	G. F. Hess, Pittsburgh, Kan.	J. M. Weir	
J. A. Edson	Kansas City, Mo.	W. S. Atkinson	G. F. Hess, Pittsburgh, Kan.	J. M. Weir	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	T. Colgate, Edwardsville, Ill.	H. J. Pfeifer	
A. Robertson	St. Louis, Mo.	C. A. How	J. E. Tierney, Stamps, Ark.	H. R. Carpenter	
W. B. Scott	Houston, Tex.	N. P. Randolph, New Orleans, La.	J. A. Power	I. A. Cottingham	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	Wm. Bawden	H. J. Pfeifer	
A. Robertson	St. Louis, Mo.	C. A. How	J. E. O'Brien	H. R. Carpenter	
J. A. Edson	Kansas City, Mo.	W. S. Atkinson	G. F. Hess, Pittsburgh, Kan.	J. M. Weir	
L. Kramer	St. Louis, Mo.	G. E. Scott	H. P. Anderson, Parsons, Kan.	V. K. Hendricks	
J. S. Pyeatt	Dallas, Tex.	J. E. Anderson	F. W. Taylor, Denison, Tex.	F. Merritt	
J. L. Lancaster	Dallas, Tex.	R. L. Irwin	A. P. Prendergast	E. F. Mitchell	
J. A. Edson	Kansas City, Mo.	W. S. Atkinson	G. F. Hess, Pittsburgh, Kan.	J. M. Weir	
A. Robertson	St. Louis, Mo.	C. A. How	J. E. O'Brien	H. R. Carpenter	
W. B. Scott	Houston, Tex.	N. P. Randolph, New Orleans, La.	J. A. Power	I. A. Cottingham	
A. Robertson	St. Louis, Mo.	C. A. How	J. E. O'Brien	H. R. Carpenter	
A. Robertson	St. Louis, Mo.	C. A. How	J. E. O'Brien	H. R. Carpenter	
W. B. Scott	Houston, Tex.	N. P. Randolph, New Orleans, La.	J. A. Power	I. A. Cottingham	
L. Kramer	St. Louis, Mo.	G. E. Scott	H. P. Anderson, Parsons, Kan.	V. K. Hendricks	
L. Kramer	St. Louis, Mo.	G. E. Scott	C. C. Higgins, Springfield, Mo.	V. K. Hendricks	
J. A. Edson	Kansas City, Mo.	W. S. Atkinson	G. F. Hess, Pittsburgh, Kan.	J. M. Weir	
J. S. Pyeatt	Dallas, Tex.	J. E. Anderson	F. W. Taylor, Denison, Tex.	F. Merritt	
L. Kramer	St. Louis, Mo.	G. E. Scott	C. C. Higgins, Springfield, Mo.	V. K. Hendricks	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	Wm. Bawden	H. J. Pfeifer	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	Wm. Bawden	H. J. Pfeifer	
W. B. Scott	Houston, Tex.	N. P. Randolph, New Orleans, La.	J. A. Power	I. A. Cottingham	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	Wm. Bawden	H. J. Pfeifer	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	Wm. Bawden	H. J. Pfeifer	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	J. P. Dolen, National Stock Yards, Ill.	H. J. Pfeifer	
L. Kramer	St. Louis, Mo.	G. E. Scott	C. C. Higgins, Springfield, Mo.	V. K. Hendricks	
J. S. Pyeatt	Dallas, Tex.	J. E. Anderson	Wm. Bawden	H. J. Pfeifer	
L. Kramer	St. Louis, Mo.	G. E. Scott	Wm. Bawden	H. J. Pfeifer	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	J. A. Power	I. A. Cottingham	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	C. C. Higgins, Springfield, Mo.	V. K. Hendricks	
W. B. Scott	Houston, Tex.	N. P. Randolph, New Orleans, La.	J. E. McQuillen, Galveston, Tex.	F. Merritt	
W. B. Scott	Houston, Tex.	N. P. Randolph, New Orleans, La.	C. C. Higgins, Springfield, Mo.	V. K. Hendricks	
L. Kramer	St. Louis, Mo.	G. E. Scott	W. J. Miller, Pine Bluff, Ark.	H. R. Carpenter	
A. Robertson	St. Louis, Mo.	C. A. How	A. P. Prendergast	E. F. Mitchell	
J. L. Lancaster	Dallas, Tex.	R. L. Irwin	Wm. Bawden	H. J. Pfeifer	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	Wm. Bawden	H. J. Pfeifer	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	Wm. Woods, E. St. Louis, Ill.	H. J. Pfeifer	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	N. P. Randolph, New Orleans, La.	J. A. Power	I. A. Cottingham
W. B. Scott	Houston, Tex.	N. P. Randolph, New Orleans, La.	J. A. Power	I. A. Cottingham	
W. B. Scott	Houston, Tex.	N. P. Randolph, New Orleans, La.	J. A. Power	I. A. Cottingham	
A. Robertson	St. Louis, Mo.	C. A. How	N. P. Randolph, New Orleans, La.	J. A. Power	I. A. Cottingham
J. L. Lancaster	Dallas, Tex.	R. L. Irwin	A. P. Prendergast	E. F. Mitchell	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	Wm. Bawden	H. J. Pfeifer	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	Wm. Bawden	H. J. Pfeifer	
J. A. Edson	Kansas City, Mo.	W. S. Atkinson	G. F. Hess, Pittsburgh, Kan.	J. M. Weir	
W. B. Scott	Houston, Tex.	N. P. Randolph, New Orleans, La.	J. A. Power	I. A. Cottingham	
J. L. Lancaster	Dallas, Tex.	R. L. Irwin	A. P. Prendergast	E. F. Mitchell	
J. S. Pyeatt	Dallas, Tex.	J. E. Anderson	J. E. McQuillen, Galveston, Tex.	F. Merritt	
J. L. Lancaster	Dallas, Tex.	R. L. Irwin	A. P. Prendergast	E. F. Mitchell	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	Wm. Bawden	H. J. Pfeifer	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	Wm. Bawden	H. J. Pfeifer	
A. S. Johnson (T.M.)	St. Louis, Mo.	W. G. O'Fallon	Wm. Bawden	H. J. Pfeifer	
J. S. Pyeatt	Dallas, Tex.	J. E. Anderson	P. W. Taylor, Denison, Tex.	F. Merritt	
J. A. Edson	Kansas City, Mo.	W. S. Atkinson	G. F. Hess, Pittsburgh, Kan.	J. M. Weir	
J. L. Lancaster	Dallas, Tex.	R. L. Irwin	A. P. Prendergast	E. F. Mitchell	
L. Kramer	St. Louis, Mo.	G. E. Scott	C. C. Higgins, Springfield, Mo.	V. K. Hendricks	
J. S. Pyeatt	Dallas, Tex.	J. E. Anderson	F. W. Taylor, Denison, Tex.	F. Merritt	
J. A. Edson	Kansas City, Mo.	W. G. O'Fallon	F. W. Taylor, Denison, Tex.	F. Merritt	
J. S. Pyeatt	Dallas, Tex.	J. E. Anderson	Wm. Bawden	H. J. Pfeifer	
J. A. Edson	Kansas City, Mo.	W. S. Atkinson	A. P. Prendergast	E. F. Mitchell	
J. S. Pyeatt	Dallas, Tex.	J. E. Anderson	C. C. Higgins, Springfield, Mo.	V. K. Hendricks	
J. A. Edson	Kansas City, Mo.	W. G. O'Fallon	F. W. Taylor, Denison, Tex.	F. Merritt	
J. S. Pyeatt	Dallas, Tex.	J. E. Anderson	F. W. Taylor, Denison, Tex.	F. Merritt	
J. A. Edson	Kansas City, Mo.	W. G. O'Fallon	Wm. Bawden	H. J. Pfeifer	

Operating officer has a title other than federal manager, it is indicated by initials, as general manager, (G. M.); terminal manager,

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of the ferment and uncertainty and in the face of the practical paralysis of any improvement program. I believe private management would be relieved of many of these disadvantages and by comparison would give the public a better service during this ambiguous period. The other question is which way. It seems to me on the second question that the extension gives the opportunity for a test. The public has had a long test of private management. It has had no test of federal control. Will help the public to think more clearly on the proposition under peace conditions, and the public would be more enlightened if there were a period of unified control under conditions of composure and reasonable continuity to contrast with a long experience of private control. The public would have a larger asset in the way of clear thinking to have the two tests, one the long experience with multiform private management and the other an experience of unified control under peace conditions.

Q. Suppose the railroads were turned back immediately to private ownership. That would terminate the machinery that has been set up by the railroad administration for adjustment of hours and wages. The private corporation will be at liberty to repudiate any of those understandings made by the railroad administration for the government of wages and working conditions and during this reconstruction period—changing from a war basis to a peace basis—might it not bring about a condition of dissatisfaction upon these railroads to turn them back immediately under those conditions? That could not possibly exist if there was a five-year period to absorb the men that return.

A. The labor problem is one of the great problems that

we have to consider. We have got to look at what was before federal control and what will be when it terminates. When it terminates, it will be a question then for each corporation to decide as to what it will do with these bases which have been established. Undoubtedly there will be a basis there for uncertainty which would not exist if the five-year extension were granted.

Q. Is it absolutely necessary to put the question of whether the railroads will be returned at once (would it be tomorrow, three months from now or a year from now) or five years from now as strongly as Mr. Hines puts it? Why not permit the country now, under the pressure existing of inconvenient conditions and disadvantages, to develop the situation?

A. The question has been very thoroughly discussed, and, knowing the difficulties incident to operation and the difficulties incident to carrying on a program of improvement, we have been forced to the conclusion that it would be much worse for the public service and indeed would produce a hopeless situation to try to hold on to the railroads for another two years without any assurance that anything will be done. We could not carry out improvements, we could not instill any sort of confidence, we already see the effects of the uncertainty which will be steadily intensified. With our constant contact with that situation and after the freest discussion the whole staff is in accord with the director general that it is an impracticable condition, and that we cannot go on in the present state of uncertainty. It will be better to terminate it and have a status of private management that will last until legislation, than have a status of federal control that will speedily terminate without legislation.

The Railroad Question in Congress

Little Sympathy Shown Toward the Director General's Five-Year Proposal

WASHINGTON, D. C.

PLANS FOR HEARINGS on the question of the disposition of the railroads before the Senate Committee on interstate commerce were discussed with Director General McAdoo on Tuesday by Senator Smith, chairman of the committee, who announced that it is planned to hold hearings immediately after the holidays and that an effort will be made to conclude them by January 15. It is proposed to hear representatives of the Railroad Administration, including Mr. McAdoo, and of shippers, state commissions and the public.

Director General McAdoo's proposal that the government shall keep the railroads for another five years has brought the question of private or government operation of the railroads squarely to the front, where an effort will be made in Congress to settle it on its merits, but prospects for legislation at the present session now appear very slim as an impression prevails that it is more important that the question be settled right than that it be settled quickly.

A postponement of any definite action until the new Congress comes in appears more likely. At this date Congress does not seem to be deeply moved by the suggestions thrown out by the President and the director general, whether they be characterized as promise, threat or bluff, that it will be necessary to promptly return the railroads to their owners unless permanent legislation is enacted shortly. A large number of leading Congressmen had already indicated an opinion that that should be done before the President proposed it, although after his address on December 2 there was a general agreement with his statement that "it would be a disservice alike to the country and to the owners of the railroads to return to the old conditions unmodified." But when

Mr. McAdoo declared it to be the only alternative to a five-year extension of the present system the idea of a return to private control lost some of its terrors, although some of the democratic leaders professed a hope that the McAdoo plan would find much support among bankers and security owners who would prefer a continuance of the government guarantee to taking the risks of a return to private management.

With the revenue and appropriation bills yet to be passed, Democratic leaders realize that it is almost impossible to get any other legislation through about which there is a sharp difference of opinion and it is perfectly apparent that the railroad question falls in that class. For that reason the subject is regarded as more appropriate for consideration at an extra session of the new Congress.

The director general had apparently calculated on the fear of a precipitate return of the roads and the difficulty of reaching a permanent solution to help "railroad" through Congress a simple resolution extending the period of federal control while Congress still has a Democratic majority naturally inclined to follow the wishes of the administration. If a shorter period would have suited his ideas it is believed the plan might have met with a greater degree of favor as a makeshift or as an experiment, but his proposal of a five-year period bore too close a resemblance to his insistence last January on an indefinite period of federal control. In other words, it was regarded as having all the earmarks of an effort to adopt a policy of permanent government control by indirection and without the necessity of facing the question of buying the railroad property. It was recalled that while Mr. McAdoo declared it is wholly impracticable to attempt to operate the railroads under the provisions of the present

law for two years more, because of the conflict of jurisdiction between the states and the federal government and because of the difficulty of forcing the railroads to finance improvements he did not specifically suggest any legislation to change the situation during a five-year period, although an appropriation and other changes in the law would be needed. It was also pointed out that even the passage at the present session of a resolution such as Mr. McAdoo proposes would by no means settle the question because the action could be reversed as soon as the next Congress comes into power, but action now would give a certain advantage in that a two-thirds majority of the new Congress would be required to override a presidential veto.

Some interest was manifested in the process by which the President changed his mind so rapidly after having declared to Congress in his address on December 2 that he had no confident judgment of his own on a question that caused him the greatest concern, that "nothing can be gained in becoming partisans of any particular plan of settlement," and that he frankly turned to Congress for counsel upon it. Two days later the President sailed for Europe and on December 11, before Congress had recovered from its surprise that he had asked its advice, Mr. McAdoo came forward with a particular plan of settlement, which he had disclosed to a few men on December 9, just a week after the President's address, declaring it to be the only alternative to a prompt return to private control, that it will be impossible for Congress to provide a proper legislative solution, and that this conclusion accords with the President's own view of the matter.

Mr. McAdoo's proposal aroused an immediate response in Congress, as well as from the representatives of the railroads and of the security owners, which indicated clearly that Congress is more inclined to accept the suggestion of the President that it have a complete and impartial study of the whole railroad problem instituted than it is to accept the solution offered by the director general. Chairman Sims of the House Committee on Interstate and Foreign Commerce gave the plan his unqualified approval, as he has been in the habit of approving plans sent to him from the executive department of the government, but Chairman Smith of the Senate committee on interstate commerce expressed a desire to have the problem solved in the light of the best judgment that can be exercised without taking any one's preconceived notions about it. He did not understand that a recommendation on the part of Mr. McAdoo or of any one else now that the war is over is anything more than merely his opinion, which may have more weight by virtue of the fact that he has been the director general of railroads. He announced that he called his committee to meet on Thursday of this week in order to discuss the status of affairs and to inquire from all those from whom knowledge can be obtained the conditions which now exist, looking toward what action shall be taken for the future.

Marked opposition to Mr. McAdoo's plan was expressed by leading senators, including Democrats as well as Republicans, who indicated a desire to have Congress reach a solution of the railroad problem for the future, considering the five-year extension plan merely as one of the various plans which have been suggested.

Senator Kellogg of Minnesota addressed the Senate on the subject, vigorously opposing the idea of extending the period of federal control for five years and demanding a permanent legislative solution within the 21 months' period. Senator Kellogg began his speech by commenting on the President's statement that he had no confident judgment of his own only a few days before Mr. McAdoo comes forward with a deliberate, well-considered plan, which he says is made with the approval of the President. The senator thought the railroads ought to be authorized to co-ordinate all their facilities, equipment and terminals, to route freight where it can be routed cheapest, and to make most effective the entire transportation

of the United States under strong government control extending to regulation of the issuance of securities, but he did not see why it should be considered necessary to accomplish all this at this particular three months' session instead of an extra session of Congress after March 4.

"The railroads were taken over presumably for war purposes," he said. "It was denied at that time that they were taken over to make a test of government ownership. Now Mr. McAdoo says we want five years to make a test. A test for what purpose? Not a test for war purposes, but a test for government ownership. That is the real bottom of the whole thing. I do not believe that the American people today are very much in favor of government operation, judged by the experience that they have had during the last year. I am willing to admit that it was an experiment during war, and I am not on my feet to criticize it, but what we should do now is to take up this important problem, pass some legislation which will make the railroads of the country most effective in carrying the freight and handling the great commerce of this country, and then turn them back to their owners, or else decide for government ownership at once and end this period of uncertainty. Mr. McAdoo says that the 21 months will be a period of uncertainty. Therefore the result he wishes is to increase the uncertainty to five years and have the whole subject in the air at the end of five years."

Senator Lenroot interrupted to ask the senator whether he cared to express an opinion upon the power of Congress to take over the use of the railroads in time of peace without providing for the payment of the value of the property to the owners. Senator Kellogg replied that he had grave doubts of the power of Congress to take them over in time of peace simply for the purpose of experiment without paying the value of the property.

Senator Martin of Virginia, Democratic leader of the Senate, announced himself as opposed to the five-year plan and also to permanent government ownership of the railroads, saying they should be returned to their owners after necessary legislation has been enacted. Senator Watson of Indiana declared himself opposed to the retention of the roads by the government, but asserted that legislation is needed to enable the railroads to meet the nation's needs. Senator Weeks of Massachusetts declared that the railroads should be given back to their owners with the least possible delay. He said that every benefit growing out of federal control should be retained as a matter of course, but he was strongly opposed to the extension. Senator Pomerene of Ohio declared that so far as Mr. McAdoo's recommendation is concerned, he was "from Missouri." Senator Penrose of Pennsylvania expressed the opinion that Mr. McAdoo has brought about such a state of utter demoralization of railroads that he has set the cause of government ownership back 50 years. Senator Underwood of Alabama declared that it would be very difficult to secure any legislation at this session on which there is a difference of opinion, but that the time provided by the law would be sufficient in which to enact the legislation which should precede the return of the roads to their owners. Senator Borah of Idaho declared for a determination now whether we are going to have public ownership or private ownership. The present situation, he said, is unbearable, "it is neither public ownership nor private ownership and five years more of it would leave a wrecked and wholly worthless transportation system and a huge public debt." Senator Townsend of Michigan declared Mr. McAdoo's proposition to be impossible and, in view of the President's statement, "a clear manifestation of duplicity."

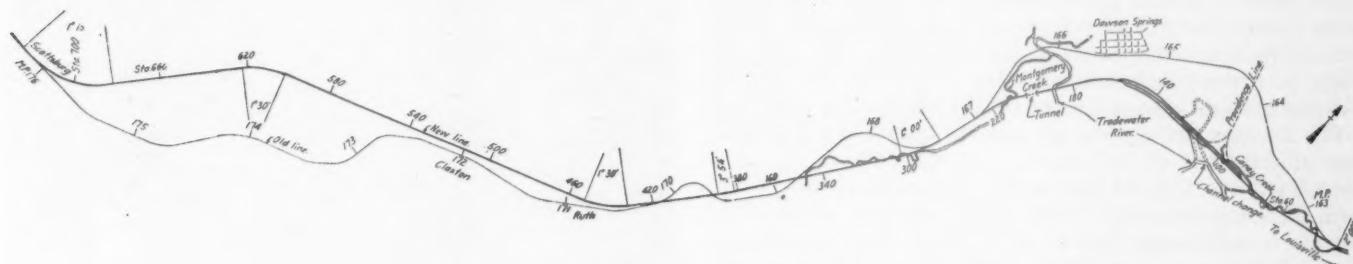
Representative Lundeen filed in the House on Tuesday a series of petitions from railway employees on the Chicago, Milwaukee & St. Paul, and the Minneapolis, St. Paul & Sault Ste. Marie, advocating the proposed five-year extension of government control and permanent government ownership of railroads.

Illinois Central Reduces Grades on Kentucky Line

War Conditions and Complex Rock Formations Interfere with Prosecution of This Improvement

PRE-WAR TRAFFIC and the anticipated growth of business under future peace conditions were the determining factors in planning the construction of $13\frac{1}{2}$ miles of low grade line to replace existing track of equivalent length on the Kentucky division of the Illinois Central. However, the increase in traffic under war conditions since this work was started in August, 1917, pointed to the immediate advantage of double track with the result that it has been found advisable to retain $8\frac{1}{2}$ miles of the old line in service for

a total distance of 62 miles from Paducah. Although the completion of this section of the work will still leave 36 miles of the engine district unimproved, the object will be largely accomplished since the last work undertaken brings the completed section of the improvement to the source of a considerable portion of the traffic—coal from mines between Dawson Springs and Central City. Here 350 to 400 cars are loaded daily, constituting about 75 per cent of the southbound traffic. The remaining business is largely of a



Map of the Grade Change Territory

traffic in the down-grade direction, utilizing the new line for uphill traffic. Thus war conditions have led to provision for $8\frac{1}{2}$ miles of second track at a cost practically equivalent to the salvage value of the rails in the old line which otherwise would have been taken out of service.

The country traversed by the line presents such erratic rock formations as to introduce serious uncertainties in the planning and execution of the excavation work. The material encountered in no two cuts was exactly the same. The work is of interest also as typifying the difficulties experienced by both the railroads and the contractors in conducting work under war conditions and in illustrating the manner of solving the problems encountered.

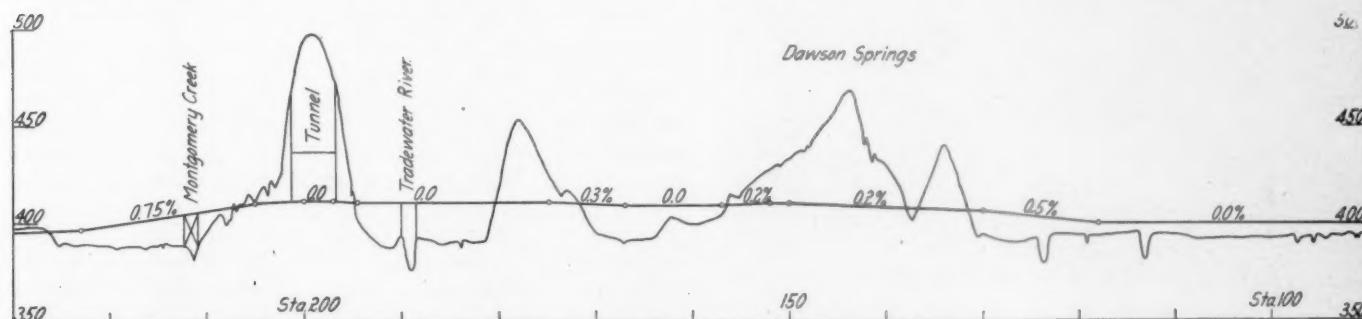
The work extends from Scottsburg, Ky., east to a point about $2\frac{1}{2}$ miles west of Dawson Springs and constitutes one

general merchandise character between points north of the Ohio river and those in the lower Mississippi valley.

The grade improvements effect a material economy in train operation. Mikado locomotives with a tractive power of 51,000 lb., which handle only 1,300 tons over the old grades, are rated at 3,200 tons on the new 0.5 per cent southbound grades. The preponderance of the traffic is in the southbound direction so that the trains returning light are easily handled by the same locomotives over the 0.75 per cent northbound grades.

An Interesting Location Problem

Physically the location of the road between the limits of this improvement involves the descent from a summit near Scottsburg down the valley of Montgomery creek to its con-



Profile of a Part of the Dawson Springs Cut-off

step in a plan to reduce the ruling grade in the 98-mile engine district between Paducah, Ky., and Central City. The grades on the old line include maxima of 1.25 per cent with six degree uncompensated curves, while the new work is based on maximum grades of 0.5 per cent against southbound traffic and 0.75 per cent against northbound traffic. Earlier work on this project, commenced in 1915, eliminated all grades in excess of those established, in the territory between Paducah and Scottsburg, a distance of 49 miles, while the new work now under way, which will be completed early next year, carries this improvement through Dawson Springs,

fluence with the Trade Water river and the occupation of the valley of that stream for a distance of five miles to the foot of an ascent in an easterly direction up the valley of Caney creek. The descent along Montgomery creek involves a difference in elevation of 158.3 ft.

From the construction standpoint the work is divided into two sections, separated by one-half mile of line that is not disturbed. These are namely, the Scottsburg section, comprising the descent of Montgomery creek and the Dawson cutoff through the valley of the Trade Water river.

The Scottsburg section has a length of 8.43 miles and

effects a saving of 1,320 ft. as compared to the old line. At the east or lower end of this work, the new line follows the old location closely in the valley of the Montgomery creek, crossing the earlier location several times and securing a straighter alignment by cutting through shoulders in the sides of the valley. This leads to a succession of more or less short, deep cuts with long and somewhat shallower embankments between them. At Claxton, about 5 miles west, where the old line turns abruptly to the south, the new location continues on a tangent for nearly two miles further, the maximum separation on the two lines being about 3,300 ft. On this independent location the changes in the ground, although heavy, are less abrupt, so that the cuts are in general much longer.

The grade line from the east rises at rates varying from 0.4 to 0.5 per cent to a point about half way up the ascent, where there is a level grade for 3,200 ft. West of this the grade rises at the rate of 0.5 per cent compensated for nearly four miles, and then continues as a 0.4 per cent grade for 3,500 ft. further to a summit. The descent to the junction with the old line is on a 0.6 per cent grade about a mile long.

The Dawson Springs cut-off extends from about 1 3/4 miles west of the town of that name to a point about 2 1/2 miles east of it. As the old line makes a general detour to the north of this point, the location of the new line south of the old one, a maximum distance of 4,600 ft. in a total length of 20,673 ft., made possible a saving of 3,554.5 ft. in distance, and 179 deg. of curvature. In making this change the new line traverses high ground between two loops or detours in the Trade Water river in the southerly portion of the town of Dawson Springs. This involves a cut 60 ft. deep of

end of this section of the work is on level grade; the difference in elevation of the two ends is only about 10 ft. and the maximum elevation at any point in the line is only 15 ft. above the lowest, the high points being reached by about 1,200 ft. of 0.5 per cent grade from the east and 1,800 ft. of 0.75 per cent grade from the west.

Complex Geological Formation

The most remarkable feature presented by the project arises from the geological formation of the country traversed by this portion of the line. From two miles east of Princeton to a point some distance beyond Nortonville, a great many



New Line Crossing Over the Old One Near Station 416



The Tunnel During Construction

nearly 200,000 cu. yd. of excavation in addition to two smaller cuts to the east and west respectively. The west mile of this section of the work is virtually an independent cut-off through a projecting shoulder of rock separating the Trade Water river from Montgomery creek. It involved the driving of a tunnel 506 ft. long which the old line avoided by crossing the Trade Water river below its junction with the creek.

Except for the excavation problems mentioned above the new line is on embankment, the first 11,000 ft. from the east end being almost entirely on fill and entailing a change in the channel of the Trade Water river to avoid the construction of two crossings. The first 10,000 ft. at the east

faults in the rocks are encountered which produce sudden changes in the stratification, while the so-called Claxton fault, crossing the west end of the Scottsburg section of the work, has effected a sudden transition from the rocks of the Pennsylvanian age which prevail east of that point to those of the Mississippian period, which are exposed west of the fault. A further phenomenon of this region is the prevalence of distorted or inclined stratification. Thus, near Claxton along the existing line of the railroad the upturned ends of 800 vertical feet of Mississippian rock have been exposed. Under such circumstances, it was impossible to predict the nature of the material to be encountered in opening the cuts and to determine the character of cut section that would safely stand in excavation. As many as six or seven different rock formations were encountered in some of the cuts, while in a few the material was uniform throughout—a pure solid sandstone. However, the latter was the exception, for by far the larger proportion of the yardage consisted of the complicated, diversified materials, which in some cases proved so unstable upon excavating that the cuts had to be removed to much flatter slopes than originally proposed. As a result the yardage of excavation for the entire project was considerably increased over that originally estimated.

The most important feature on the Dawson Springs cut-off was the cut at Dawson Springs, which was excavated for a main track and two passing tracks. The material was mainly sand and sandstone, with some sandy shale above a thin stratum of coal overlying some fire clay. The material from this cut was used in fills both east and the west, only a small portion being made from borrow.

On the Scottsburg line the first heavy cut at the east end of the work extends from station 395 to 404. It is 74 ft. deep

and contained 12,600 cu. yd. of earth and 45,700 cu. yd. of rock. A stratum of shale not far from the grade line and having a sharp transverse dip caused serious sliding on the north side of this cut. The ground at the end of the cut is so steep, rising 100 ft. in a horizontal distance of 270 ft.,



Location of the Bridge Over Montgomery Creek Near Station 395

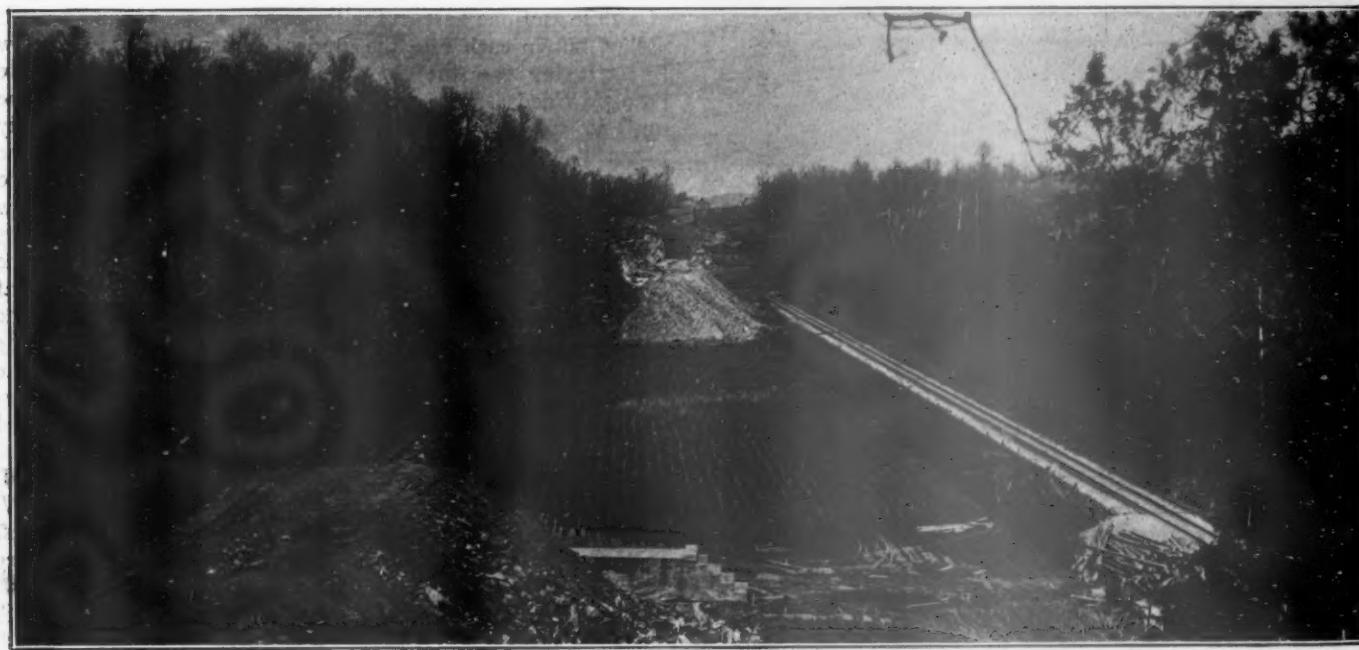
that it was with great difficulty that the contractor placed his equipment in position for the first cut.

Between stations 434 and 440 there is a side-hill cut that differs from nearly all of the other work in that the material is a solid, almost unseamed sandstone, as shown in one

main line and the old are close together, although the grades are separated by 30 to 40 ft. Two embankments in this stretch of the new line were built by the general contractor from material in the summit cuts nearly four miles away, by the use of the main track for some distance and 4,000 ft. of construction railroad descending from the new line to the old track near Claxton. This afforded a detour about 9,000 ft. long around a section of the work, assigned to the S. M. Boorhem Company, a sub-contractor. About 250,000 cu. yd. of material was handled in this way.

West of Claxton the rock in the cut assumed a much more erratic character. A short cut at station 500 contained 17,750 yd. of material in a length of 700 ft. This was largely conglomerate, solid in place, but which required slopes of $\frac{3}{4}$ to 1 to obtain the necessary stability in the cut. From station 534 to 542 a cut of 65 ft. maximum depth contained strata of shale, conglomerate, sandstone, limestone, and boulders. A still more remarkable combination of materials was disclosed in a cut 1,400 ft. long and 60 ft. deep, beginning at station 552. At the top there was earth containing floating boulders to a depth of 15 ft. Below this was a 20-ft. stratum of material having the appearance of natural masonry, and consisting of several courses of rectangular limestone blocks with a residual clay in the horizontal and vertical joints. Underneath this were two 4-ft. courses of soft black shale and hard shale respectively with a hard limestone formation for the remaining depth. The earth was taken out on a slope of $1\frac{1}{2}$ to 1, and the remaining material at $\frac{1}{4}$ to 1, but the behavior of the clay-imbedded limestone caused trouble through the fact that the clay joints between the blocks of stone ran out, allowing the rocks to fall. As a result this cut will have to be sloped to an angle of one horizontal to one vertical.

The summit cut, virtually 3,500 ft. long, with an average depth of 15 ft., and the next cut to the east, 5,300 ft. long, with the maximum depth of 45 ft., were excavated by the general contractor's own forces. The second-named cut



Location in the Lower Portion of the Montgomery Creek Valley

of the photographs. A large part of this material was wasted by a coyote shot which was accomplished by driving a tunnel for 100 ft. along the center line from an adit driven in from the outside. The tunnel was loaded with 537 kegs of black powder and the blast moved about 5,000 cu. yd. of rock.

Between Ruth and Claxton, a distance of $1\frac{1}{2}$ miles, the

was by far the most formidable, containing about 200,000 cu. yd. of material, 50 per cent of which was rock. Over 50,000 cu. yd. of additional excavation was required in this cut because of a slide that came out of the south slope. The material consisted of a sandstone carried on limestone with a stratum of shale between, the limestone being on a trans-

verse dip of 30 deg. from the horizontal descending from south to north. As soon as the lateral support of the sandstone was removed it slipped into the excavation for a length of 700 ft., the rock breaking away on the surface as far as 90 ft. beyond the established edge of the slope. One of the photographs illustrates the resulting condition.

Construction of the Tunnel

As previously mentioned the material encountered in the tunnel was unlike almost anything else on the work. It was hard, white sandstone of nearly uniform texture throughout the entire length of the bore. The excavation was conducted by a full width bottom heading 10 ft. high into which the rock from the rest of the section was trapped. Jack hammers were used for all of the work and the material was mucked by hand in small cars on a 2-ft. gage track. Double shifts were used at each heading and one-half of the tunnel was taken out in a single month. The work was done by Peter McVeigh, of Butte, Mont., as a sub-contractor. It is not expected that lining will be necessary, as a short tunnel on the old line through the same ridge has stood since 1872 with very little disintegration of the rock.

Structures

This project involved but a limited amount of bridge work. The only structure of importance is a bridge over the Trade Water river consisting of four deck plate girder spans, one



Diversified Materials in the Cut at Station 560

79 ft. 6 in. and three 51 ft. 1½ in. long. The substructure is of concrete on pile foundation with the exception of one pier at the site of which rock was encountered on a slope so great that there was a difference of 14 ft. in the elevation of the surface in the width of the cofferdam. The practical certainty of sliding with a pile foundation under such circumstances led to the conclusion to carry the pier to the rock. This necessitated a new cofferdam built around the old one to provide a puddle wall, and with the aid of this, the rock surface was unwatered and stepped off to afford a stable seat for the pier. These measures necessitated a maximum depth of the pier of 58 ft. below the base of the rail.

All of the piers in this structure are stepped out on the north side to provide for future second track.

At station 395 there is a bridge over Montgomery creek consisting of a 75-ft. girder span. One end of this is supported on an abutment built into the rock ledge of the hillside at the end of a cut, while the other end of the girder is supported on a pier 50 ft. high. The connection between this end of the girder and the head of the adjoining embankment is made by means of a 50-ft. approach span having its outer end supported on a bank block carried by creosoted piles driven into the embankment.

The new line crosses the old one three times in a distance



Bad Slide in the Cut Just East of the Summit

of a mile and one half in the lower end of Montgomery creek valley, but in each case the grades are separated by the new line crossing over the old one. Temporary structures have been provided at these places to carry traffic on the new line until it should be abandoned on the old line as originally planned, but since it has been decided to retain the old line in service as an eastbound track, these structures will be maintained until such time as it is found necessary to renew them with permanent construction.

The work was all conducted under a contract with the Walsh Construction Company, of Davenport, Iowa, some of it being done on a subcontract, and some by the forces of the general contractor. Conditions arising as the result of the war introduced such large increases in the cost of doing the work that it was necessary to relieve the contractor by changing the stipulations of the contract from a price-per-yard basis to a cost-plus-percentage form of contract.

The work is being prosecuted under the direction of T. H. Robertson, assistant engineer, Illinois Central, with H. W. Clowe as resident engineer on the Dawson Springs cut-off and G. C. Harris, resident engineer, on the Scottsburg line.

The entire work was under the general supervision of A. S. Baldwin, until recently chief engineer of the Illinois Central, and F. L. Thompson, formerly assistant chief engineer and now chief engineer. In connection with the project described above, work was started at the same time on what is known as the Providence line extending north from Dawson Springs to Providence, a distance of about 21 miles. The object of this line was to obtain a short connection with coal mines located in the vicinity of Providence, but this work was discontinued during the past year as being nonessential to the winning of the war.

Doings of the United States Railroad Administration

Plans Whereby War Finance Corporation May Make Advances to Railroads Receive Consideration

PLANS BY WHICH THE War Finance Corporation may make advances to railroad companies to assist them in financing improvements, besides taking over some of the loans made to railroad companies from the revolving fund of the Railroad Administration, have been discussed by the War Finance Corporation, the new Secretary of the Treasury, Carter Glass, and Director General McAdoo. It is understood that only technical objections stand in the way of the plan, and that it will be possible in this way materially to replenish the revolving fund, relieving it from the necessity for rendering further financial assistance to the railroads. The revolving fund has been drawn upon not only to make advances to railroads on account of their compensation, but also for direct loans and for advances for cars and locomotives, for which the Railroad Administration has paid the builders, but which it expects to collect from the railroad companies. It is understood that the revolving fund has been nearly exhausted, although no statements have been made public indicating its exact condition. The latest reports of earnings and expenses issued by the Interstate Commerce Commission indicate that it would be necessary to draw upon the revolving fund to pay operating expenses if the Railroad Administration had paid the railroad companies all it will owe them in the way of compensation when the contracts are signed; also when the railroads receive the money due them under the contracts they will be able to repay some of the advances and it is hoped that the War Finance Corporation may be able to assist in both processes.

Barge Projects to Be Carried Out

Director General McAdoo is making an effort to enlist the support of the advocates of waterway development for his proposal for extending the period of federal control of the railroads. In reply to numerous reports that contracts for barges for the Mississippi river were to be cancelled, he telegraphed on December 13, to the presidents of the St. Louis Merchants' Exchange, and Chamber of Commerce, stating that the contracts will be carried out. He added:

"It is proper that I should call your attention to the fact, however, that unless the Congress shall extend the period of federal control so that a reasonable opportunity may be afforded for a fair test of the value of unified railroad operation along with co-ordinated inland waterways operation, the experiment on the Mississippi river may not hold out much promise. I doubt if the Mississippi river operation can produce satisfactory results if the railroads should be turned back soon to private control. The old methods of railroad competition with waterways transportation will be revived and it is probable that the waterways experiment may not be able to survive that competition. I suggest these phases of the problem because as an American citizen whose earnest interest in proper waterways development has been manifested frequently, I think your business men's organizations in St. Louis should consider very seriously the importance of extending the period of federal control of the railroads as I have just proposed, in order that a fair test of unified operation of the railroads may be made and that along with it the inland waterways may be developed and a fair opportunity given to demonstrate the usefulness of such development."

The Railroad Administration has decided to let contracts for barges and towboats for service on the Black Warrior river between Cordova and New Orleans and Mobile amount-

ing to \$1,600,000, which will make it possible to increase the coal traffic on the river by 375,000 tons a year. For the New Orleans service four self-propelled steel barges 275 feet long will be ordered, costing \$250,000 each, and for the Mobile service it is proposed to construct 20 wooden barges costing \$120,000, and three steel towboats costing \$160,000 each.

WASHINGTON, D. C.

Weekly Report of Traffic Conditions

According to the weekly report of traffic conditions made public by Director General McAdoo on December 18, a striking improvement in traffic conditions, both passenger and freight, is noted throughout the entire country. Business is gradually readjusting itself and manufacturing plants, heretofore engaged on munitions, are changing to work on construction orders.

The movement of grain, coal and livestock is continuing without any appreciable interruption. The lake cargo coal handled at Lake Erie ports for the season exceeded that of 1917 by 1,000,000 tons. Perishable and live stock movements from Chicago to New York increased 3,947 cars during the past week.

In the Allegheny region the coal production increased. In the Pocahontas region there was a decrease in tidewater coal largely due to the lack of demand for water movement to New England.

A very healthy condition is noted in the Northwestern region. Revenue freight loaded increased 1,396 cars for the week ended December 10. The movement of livestock continues very heavy and grain loadings have increased. The arrivals of grain at the primary markets show 20,000,000 bushels this year as against 7,500,000 bushels for 1917. The temporary shortage of cars for loading grain in Minnesota, the Dakotas and Montana has been relieved.

The War and Navy Departments report that releases of cars at the port of New York exceeded the arrivals by 1,024 cars. The holiday travel being augmented by discharged and furloughed soldiers the ticketing facilities in the large centres and at the camps have been increased.

A summary of the report follows:

Eastern Region.—Grain is being freely permitted for export; shipments from Chicago for the week ending December 10 exceed the same period last year by 3,600,000 bushels. Automobile manufacturers are turning their forces into their former regular lines of work. Perishable and livestock movements from Chicago to New York show a decrease of 382 trains, but an increase of 3,947 cars. Continued increase in passenger traffic, particularly in high class trains. Extra suburban trains run in the vicinity of Cleveland to take up the travel tied up by the trolley strike, with favorable comment from the public. Union Station at Cleveland approved by city council will be voted on by the people January 6.

Allegheny Region.—Passenger travel increasing, five special workmen's trains withdrawn. Movement of perishable freight active. Temporary shortage of refrigerator cars, which will be corrected. Coal production and loading increased in Allegheny region during the week. Shipping Day Guide for Pittsburgh is being issued.

Pocahontas Region.—Loaded freight movement indicates general slowing up, with the particular decrease in tidewater coal, largely due to lack of demand for water movement to New England.

Southern Region.—Passenger travel normal. Movement of

discharged laborers is requiring special attention in the way of train service, but as a result of the discontinuance of government plants labor trains are being abandoned at various points. Numerous train schedules have been slightly lengthened, with better results in maintaining schedules. Birmingham foundries and furnaces are running full time, with orders months ahead. The cotton situation still sluggish. Car situation in good shape, and the Christmas rush of Florida fruits being anticipated in refrigerator car supply.

Northwestern Region.—Revenue freight loaded increased 1,396 cars for the week. Livestock movement very heavy, and grain loadings largely increased. Grain arrivals at the large primary markets show 20,000,000 bushels this year as against 7,500,000 bushels last year. Temporary shortage of car supply for loading grain in Minnesota, the Dakotas and Montana is being rectified. Condition of crops throughout the territory continues very favorable. C. M. & St. P. reports saving of 981 cars under the sailing day plan for the month of November. No marked change in volume of passenger traffic.

Central Western Region.—Livestock and grain loading increased; coal movement decreased. Car situation easy. Passenger business heavier than preceding week, the California travel being heavier than a year ago. Various changes in passenger trains, with some increases to accommodate heavier travel, and some discontinuances of unnecessary train service. Influenza epidemic still affecting travel adversely.

Southwestern Region.—Reports indicate winter crops in splendid condition. Oil developments continue actively in the Wichita Falls and Ranger Districts. Miscellaneous traffic increased over last week; lumber loading heavy. Revival of influenza epidemic has had its effect on the general traffic. Movement of furloughed and discharged soldiers being handled without complaint.

War and Navy Departments.—Transportation situation continues good. Elimination of overtime in the employment of labor adversely affecting the ability to unload, but situation improving.

Food Administration.—Fresh meat and packing house products—situation generally satisfactory, and complaint practically ceased. Livestock—situation on the L. & N., which was the only bad point, shows material improvement. Grain—moving freely into Kansas City, due to demands of the mills. Some difficulty at Boston on the export, owing to labor trouble, which is being given attention by regional director. Fruits and vegetables—movement generally good, and car supply satisfactory, except in some small instances, which have been corrected. Transportation conditions as a whole satisfactory.

The Allies' Traffic.—Transportation situation satisfactory as to movement of stores and foodstuffs, the only trouble being congestion at Newport News, which will be relieved by the decreased use of that port by the War Department.

Coastwise Steamship Lines.—All wooden and lake vessels heretofore allocated to the coastwise steamship lines have been released, with the exception of a few, which are enroute or loaded.

Exports Control Committee.—British, French and Italians are actively looking after the accumulations at seaboard of their stores, returning them to the shipping points for disposition. A large amount of ocean tonnage will be turned back to trade routes shortly. Grain situation at the ports satisfactory, excepting perhaps at Port Arthur, where there is an accumulation of grain at present. Puget Sound ports show further increase in cars on hand in spite of efforts being made to control the traffic, but California ports show decrease.

Short Line Contracts Signed

Director General McAdoo has signed co-operative contracts with the Pecos Valley Southern and the Eastern Carolina, short-line railroads.

Conditions in Allegheny Region

Marked betterment in traffic conditions during the month of November was noted by C. H. Markham, regional director of the Allegheny region, in a report to the director general. There was an adequate car supply in November, with the result that it had been possible to remove all important embargoes on carload freight except where the movement was controlled by permits. There are no embargoes in the Allegheny region at transfer platforms against less carload freight. Favorable progress was made in additions and betterment work during the latter part of the month because of increased supply of labor.

Mr. Markham's report in part follows:

Railroads in the Allegheny region were able during November to afford necessary transportation, although during the early part of the month there was a slowing up of business due to the serious influenza epidemic. During the latter part of the month the epidemic abated and conditions everywhere have improved, until it no longer seriously handicaps the steady flow of traffic. Weather conditions were favorable for successful operation.

"There was a decrease of 84,532 cars, or 12 per cent in revenue freight loaded, and 9,655 cars, or 1.7 per cent in revenue freight received from connections, compared with November of last year. Anthracite coal loading decreased 11,992 cars, or 20 per cent, and bituminous coal loading decreased 698 cars, or 0.4 per cent. The greater portion of the decrease in revenue cars handled and coal output was due to two peace day celebrations, Thanksgiving day, which was more generally observed this year, and to the influenza epidemic affecting the mining of coal and loading and unloading of other commodities. Tidewater coal dumped was 2,203,601 tons, an increase of 237,228 tons, or 12 per cent, compared with November of last year. There was an adequate car supply available, the cars in the Allegheny region equalled 99 per cent of ownership compared with 115 per cent June 1, 1918.

"Sailing day guides have been published covering Philadelphia, Trenton and Baltimore, and the remainder of the guides for this region are expected to be completed by January 1. This is resulting in the saving of a large number of cars and permits the loading of solid cars to remote points, resulting in better service to the public, avoiding delay at transfer platforms, and eliminates the additional expense of handling at such transfer stations.

"The report of blast furnace operations November 23 shows no furnaces out due to transportation deficiencies.

"Passenger travel during month was normal. Passenger train schedules were maintained with reasonable regularity, showing a big improvement over corresponding period of 1917. Due to cessation of hostilities seven trains serving war industries have been withdrawn, and since that time troop movements have been light.

"The number of bad order cars decreased 2578 compared with October, 1918. Locomotive output increased 6 per cent as compared with October, due to better working conditions, influenza not being so prevalent, but the locomotives out of service increased 50. The railroads received 15 locomotives built in their shops, and 10 from locomotive builders, leaving 319 to be received to complete 1918 program. Ninety-one unifications of facilities were effected during month, resulting in an annual saving of \$766,000. Total annual saving in the region due to unification of facilities and service since federal control amounts to \$7,945,000.

"Addition and betterment work during the latter part of the month made better progress due to ability to recruit more labor as the demand has not been so great in the war industries. By concentrating on enginehouse and yard improvements, a large portion of such work has been completed, or is nearing completion, so that benefit will be derived during present winter from these expenditures."

Classification of Passenger Train Employees

Director General McAdoo has issued the following Supplement No. 12 to General Order No. 27. To carry out the intent of Article VI, of General Order No. 27, and retroactive to June 1, 1918, it is ordered:

1. Employees in a passenger train crew, except conductor, collector and baggagemaster, qualified and regularly required to perform the following essential duties, will be designated as passenger brakemen or flagmen, and paid accordingly:

- (a) Inspect cars and test signal and brake apparatus for the safety of train movement.
- (b) Use hand and lamp signals for the protection and movement of trains.
- (c) Open and close switches.
- (d) Couple and uncouple cars and engines and the hose and chain attachments thereof.
- (e) Compare watches when required by rule.

2. Where white brakemen are not employed, the compensation and overtime rule for colored brakemen shall be the same, for both passenger and freight service, as for the same positions on the minimum paid contiguous road.

3. This order shall not curtail the duties of employees heretofore classed as "train porters."

4. This order shall not infringe upon the seniority rights of white trainmen.

Passenger Traffic Statistics

Railroads under federal control during the nine months ending September 30 showed an increase of 14.3 per cent in passengers carried one mile, as compared with the corresponding period of 1917, according to a report compiled by the Operating Statistics Section of the Railroad Administration. For the month of September, however, the increase was only 0.03 per cent, undoubtedly reflecting the effect, after the summer vacation season was over, of the increased fares which went into effect in June, as well as the admonitions to refrain from travel. For August a similar compilation had shown an increase of 11.6 per cent. For the nine months all of the regions and districts showed increases, the largest being that in the Southern district, 39.7 per cent. For September the Allegheny, the Pocahontas, Southern and Southwestern regions showed increases, while in the others there were decreases. The report follows:

Railroad	Average miles operated	PASSENGERS CARRIED ONE MILE						Nine months ended		September 30		
		Month of September				1918		1917		Increase or Decrease	Per cent	
		1918	1917	Increase or Decrease	Per cent	1918	1917	Increase or Decrease	Per cent	Increase or Decrease	Per cent	
EASTERN REGION												
<i>New England District</i>												
Bangor & Aroostook.....	632	2,193,383	3,181,767	d988,384	d31.1	18,430,926	22,252,988	d3,822,062	d17.2			
Boston & Albany.....	394	34,188,161	39,550,908	d5,362,747	d13.6	287,350,670	280,275,797	7,074,873	2.5			
Boston & Maine.....	2,259	80,930,784	96,162,456	d15,231,672	d15.8	688,177,759	698,650,205	d10,472,446	d1.5			
Central Vermont.....	536	3,704,907	4,291,305	d586,398	d13.7	25,036,996	30,983,383	d5,946,387	d19.2			
Grand Trunk in New England.....	172	956,505	1,374,465	d417,960	d30.4	8,423,453	9,426,985	d1,003,532	d10.6			
Maine Central.....	1,217	16,478,151	18,114,452	d1,636,301	d9.0	118,326,926	120,863,798	d2,536,872	d2.1			
N. Y., New Haven & H. (incl. C. N. E.).....	2,309	174,838,783	182,655,547	d7,816,764	d4.3	1,418,842,279	1,355,019,392	63,822,887	4.6			
Rutland.....	415	4,553,420	5,493,356	d939,939	d17.1	32,093,258	40,432,448	d8,339,190	d20.6			
Total, New England District.....	7,934	317,844,094	350,824,256	d32,980,162	d9.4	2,596,682,267	2,557,904,996	38,777,271	1.5			
<i>Central District</i>												
Ann Arbor.....	294	2,374,993	2,842,034	d467,041	d16.4	18,180,917	21,248,882	d3,067,965	d14.4			
Buffalo, Rochester & Pittsburgh.....	585	4,534,944	5,623,030	d1,088,086	d19.4	39,938,137	42,513,343	d2,575,206	d6.0			
Chicago & Erie.....	270	5,430,063	2,566,056	2,864,007	111.6	30,632,097	22,722,198	7,909,899	34.8			
Delaware & Hudson.....	903	10,613,382	14,653,668	d4,040,286	d27.6	85,080,804	97,614,527	d12,533,723	d12.9			
Delaware, Lackawanna & Western.....	996	65,499,632	56,959,805	8,539,827	15.0	458,428,391	438,416,722	20,011,669	4.6			
Detroit & Mackinac.....	382	(*)	(*)	(*)	(*)	9,030,476	9,921,409	d890,933	d9.0			
Erie.....	1,988	56,838,043	55,688,441	1,149,602	2.1	496,491,775	330,768,749	165,723,026	50.1			
Grand Trunk Western Lines.....	336	11,390,255	12,704,504	d1,314,249	d10.4	92,163,136	92,962,107	d798,971	d0.9			
Lehigh & Hudson River.....	97	137,200	199,199	d61,999	d31.1	2,251,889	1,352,173	d100,284	d7.4			
Lehigh & New England.....	222	47,147	44,043	3,104	7.0	498,929	476,635	22,294	4.7			
Lehigh Valley.....	1,439	24,318,778	26,037,012	d1,718,234	d6.6	214,209,873	182,140,061	32,069,812	17.6			
Michigan Central.....	1,862	50,341,491	57,675,398	d7,333,907	d12.7	448,257,956	419,638,221	28,619,735	6.4			
New York Central.....	5,649	247,469,633	263,728,139	d16,258,506	d6.2	1,908,419,035	1,911,722,912	d3,303,877	d0.2			
New York, Chicago & St. Louis.....	571	5,894,888	8,990,232	d3,095,344	d34.4	65,223,643	57,935,709	7,287,934	12.6			
New York, Ontario & Western.....	568	10,082,873	8,592,865	1,490,008	17.3	71,887,916	63,872,507	8,015,408	12.6			
New York, Susquehanna & Western.....	135	4,113,757	4,186,894	d73,137	d1.7	34,834,250	36,946,496	d2,112,246	d5.7			
Pere Marquette.....	2,233	15,666,288	20,538,977	d4,872,589	d23.7	129,007,973	164,499,639	d35,491,666	d21.6			
Pittsburgh & Shawmut.....	95	139,497	95,086	44,411	46.7	1,216,355	1,119,061	97,294	8.7			
Ulster & Delaware.....	129	1,151,278	1,472,068	d320,790	d21.8	7,773,290	9,053,629	d1,280,339	d14.1			
Wabash.....	2,519	38,900,994	38,285,960	615,034	1.6	319,150,349	291,271,273	27,879,076	9.6			
Total, Central District.....	21,273	554,945,136	580,883,411	d25,938,275	d4.5	4,431,677,191	4,196,196,253	235,480,938	5.7			
<i>Ohio-Indiana District</i>												
Baltimore & Ohio, West.....	2,596	40,973,315	43,765,565	d2,792,250	d6.4	314,088,583	283,569,251	30,519,332	10.8			
Chesapeake & Ohio of Indiana.....	284	819,104	872,463	d53,359	d6.1	7,242,170	11,300,088	d4,057,918	d35.9			
Chicago, Indianapolis & Louisville.....	657	8,152,715	10,560,883	d2,408,168	d22.8	74,384,068	75,085,833	d701,765	d0.9			
Cincinnati, Indianapolis & Western.....	296	1,821,006	3,634,513	d1,813,507	d49.9	17,444,591	23,723,890	d6,279,299	d26.5			
Cleveland, Cincinnati, Chicago & St. Louis.....	2,396	58,570,225	59,460,859	d890,634	d1.5	484,828,338	430,247,201	54,581,137	13.6			
Cincinnati Northern.....	251	685,332	953,140	d267,808	d28.1	5,916,312	7,133,572	d1,217,260	d17.1			
Detroit, Toledo & Ironton.....	457	548,938	831,259	d282,321	d34.0	4,638,455	5,980,940	d1,342,485	d22.4			
Grand Rapids & Indiana.....	570	7,537,741	10,684,031	d3,146,290	d29.4	56,021,216	65,644,222	d9,623,006	d14.7			
Hocking Valley.....	350	3,533,594	4,579,710	d1,046,116	d22.8	(*)	(*)	(*)	(*)			
Kanawha & Michigan.....	214	5,888,712	2,186,729	3,701,983	169.3	43,065,287	14,894,886	28,170,401	189.1			
Lake Erie & Western.....	878	2,181,504	3,625,989	d1,444,485	d39.8	21,378,246	26,983,068	d5,604,822	d20.8			
Penna. Lines West (incl. P. C. C. & St. L.).....	4,154	126,712,811	129,115,817	d2,403,006	d1.9	1,035,141,331	978,380,322	56,761,009	5.7			
Toledo & Ohio Central.....	430	2,994,883	3,755,017	d760,134	d20.2	23,713,127	27,057,535	d3,344,408	d12.4			
Toledo, St. Louis & Western.....	454	2,270,684	4,214,800	d1,944,116	d46.1	32,667,910	28,346,965	4,320,945	15.2			
Wheeling & Lake Erie.....	547	1,750,915	3,051,982	d31,301,067	d42.6	17,275,826	29,905,425	d12,629,599	d42.2			
Zanesville & Western.....	87	245,272	270,263	d24,991	d9.2	(*)	(*)	(*)	(*)			
Total, Ohio-Indiana District.....	14,621	264,686,751	281,563,020	d16,876,269	d5.9	2,137,805,460	2,008,253,198	129,552,262	6.5			
Grand total, Eastern Region.....	43,828	1,137,475,981	1,213,270,687	d75,794,706	d6.2	9,166,164,918	8,762,354,447	403,810,471	4.7			
ALLEGHENY REGION												
Baltimore & Ohio, East.....	2,347	76,633,699	59,311,376	17,322,323	29.2	567,808,690	416,259,880	151,548,810	36.4			
Bessemer & Lake Erie.....	225	1,484,574	3,452,552	d1,967,978	d57.0	12,027,969	17,091,352	d5,063,383	d29.6			
Buffalo & Susquehanna.....	272	206,879	222,765	d15,886	d7.1	1,825,950	2,010,135	d184,185	d9.2			
Coal & Coke.....	197	854,423	850,005	4,418	0.5	6,864,940	6,220,253	644,687	10.3			
Central of New Jersey.....	684	32,797,159	41,318,847	d8,521,688	d20.6	308,904,136	330,154,965	d21,250,829	d6.5			
Cumberland Valley.....	164	2,844,817	3,169,024	d324,207	d10.2	26,110,813	25,702,523	408,290	1.6			
Long Island.....	61	(*)	(*)	(*)	(*)	2,029,262	2,118,951	d89,689	d4.2			
Maryland, Delaware & Virginia.....	398	91,531,884	82,192,922	9,338,962	11.4	703,978,598	583,326,788	120,651,810	20.7			
Monongahela.....	83	342,500	370,260	d27,760	d7.5	(*)	(*)	(*)	(*)			
New York, Philadelphia & Norfolk.....	108	826,112	704,839	121,273	17.2	6,333,323	4,685,905	1,647,418	35.2			
Pennsylvania, Eastern Lines.....	5,412	442,601,759	363,617,767	78,983,992	21.7	3,068,244,062	2,325,741,012	742,503,050	31.9			
Philadelphia & Reading.....	1,622	49,368,217	58,618,633	d9,250,416	d15.8	441,572,342	457,021,574	d15,449,232	d3.4			
Pittsburgh & Lake Erie.....	225	11,116,457	11,903,014	d786,557	d6.6	84,840,768	92,189,264	d7,348,496	d8.0			
Pittsburgh & West Virginia.....	63	491,316	616,182	d124								

PASSENGERS CARRIED ONE MILE (Continued).

Railroad	Average miles operated	Month of September				Nine months ended September 30			
		1918	1917	Increase or Decrease	Per cent	1918	1917	Increase or Decrease	Per cent
POCAHONTAS REGION									
Chesapeake & Ohio.....	2,195	40,244,306	34,755,304	5,489,002	15.8	356,033,610	259,026,496	97,007,114	37.5
Norfolk & Western.....	2,101	33,374,383	33,493,127	d118,744	d0.4	290,865,000	226,559,460	64,305,540	28.4
Virginian	489	2,301,416	2,782,945	d481,529	d17.3	16,707,054	16,728,300	d21,246	d0.1
Total, Pocahontas Region.....	4,785	75,920,105	71,031,376	4,888,729	6.9	663,605,664	502,314,256	161,291,408	35.0
SOUTHERN REGION									
Alabama & Vicksburg.....	141	1,774,593	1,785,870	d11,277	d0.6	15,863,010	13,785,155	2,077,855	15.1
Atlanta & West Point.....	223	7,925,898	5,335,955	2,589,943	48.5	62,672,259	42,115,149	20,557,110	48.8
Atlanta, Birmingham & Atlantic.....	640	2,926,936	3,103,334	d176,398	d5.7	21,995,626	20,416,423	1,579,203	7.7
Atlantic Coast Line.....	484	53,796,206	41,069,435	12,726,771	31.0	480,746,050	372,151,426	108,594,624	29.2
Carolina, Clinchfield & Ohio.....	291	1,145,545	1,346,788	d201,243	d14.9	13,578,030	9,228,676	4,349,354	47.1
Central of Georgia.....	1,918	22,003,336	18,632,018	3,371,318	18.1	186,701,132	141,986,528	44,714,604	31.5
Charleston & Western Carolina.....	343	1,443,909	1,700,087	d256,178	d15.1	16,499,147	12,922,787	3,576,360	27.7
Florida East Coast.....	765	5,834,945	5,002,190	832,755	16.6	67,334,725	73,647,830	d6,313,105	d8.6
Georgia.....	329	(*)	(*)	(*)	(*)	61,463,165	33,946,206	27,516,959	81.1
Georgia, Southern & Florida.....	402	3,374,735	4,013,806	d639,071	d15.9	(*)	(*)	(*)	(*)
Gulf & Ship Island.....	308	1,904,871	2,151,517	d246,646	d11.5	17,210,359	12,000,976	5,209,383	43.4
Gulf, Mobile & Northern.....	402	1,509,901	1,175,104	334,797	28.5	11,167,212	8,732,066	2,435,146	27.9
Illinois Central (incl. Y. & M. V.).....	6,216	92,391,166	90,653,344	1,737,822	1.9	769,094,354	693,853,072	75,241,282	10.9
Louisville & Nashville.....	4,996	87,660,327	72,764,921	14,895,406	20.5	716,426,781	528,668,808	187,757,973	35.5
Louisville, Henderson & St. Louis.....	200	2,551,798	2,271,384	280,414	12.3	20,193,392	16,955,151	3,238,241	19.1
Mississippi Central.....	164	2,158,380	2,070,721	87,659	4.2	14,224,604	7,040,460	7,184,144	102.0
Mobile & Ohio.....	991	7,648,272	7,679,921	d31,649	d0.4	60,259,537	50,527,992	9,731,545	19.3
Nashville, Chattanooga & St. Louis.....	1,234	25,541,280	17,924,184	7,617,096	42.5	189,980,472	117,552,477	72,427,995	61.6
New Orleans Great Northern.....	285	1,717,365	1,886,399	d169,034	d9.0	14,621,887	14,117,673	504,214	3.5
Norfolk Southern.....	907	6,865,939	7,161,055	d295,116	d4.1	52,877,555	52,031,848	845,707	1.6
R. F. & P. (incl. Wash. Southern).....	112	25,430,422	12,175,649	13,254,773	108.9	157,245,278	87,261,508	69,983,770	80.2
Seaboard Air Line.....	3,563	57,638,374	35,856,470	21,781,904	60.7	406,887,956	236,770,141	170,117,815	71.9
Southern (inc. A.G.S., C.N.O.&T.P., N.O.&N.E.).....	8,151	188,473,715	147,878,067	40,595,648	27.5	1,498,407,101	935,066,010	563,341,091	60.2
Southern Railway in Mississippi.....	278	1,674,455	1,469,680	204,775	13.9	13,152,826	10,419,660	2,733,166	26.2
Tennessee Central.....	294	5,290,669	1,794,967	3,495,702	194.8	35,840,790	12,278,274	23,562,516	191.9
Total, Southern Region.....	33,637	608,683,037	486,902,866	121,780,171	25.0	4,904,443,248	3,503,476,296	1,400,966,952	39.7
NORTHWESTERN REGION									
Chicago & North Western.....	8,090	113,433,611	129,960,598	d16,526,987	d12.7	954,532,943	934,190,937	*20,342,006	2.2
Chicago Great Western.....	1,496	16,946,577	19,897,053	d2,950,497	d14.8	153,022,507	134,204,459	18,818,048	14.0
Chicago, Milwaukee & St. Paul.....	10,305	83,084,447	104,037,366	d20,952,919	d20.1	693,858,832	727,360,742	d33,501,910	d4.6
Chicago, St. P. M. & Omaha.....	1,749	24,689,318	29,669,421	d4,980,103	d16.8	199,637,236	199,624,757	12,479	...
Duluth & Iron Range.....	285	607,033	1,002,138	d395,105	d39.4	(*)	(*)	(*)	(*)
Duluth, Missabe & Northern.....	411	1,303,678	1,726,688	d423,010	d24.5	14,097,192	14,939,172	d841,980	d6.0
Duluth, South Shore & Atlantic.....	601	3,391,073	4,276,838	d885,763	d20.7	27,259,980	30,521,142	d3,261,162	d10.7
Elgin, Joliet & Eastern.....	807	498	566	d68	d20.0	(*)	(*)	(*)	(*)
Great Northern.....	8,257	57,833,583	69,650,894	d11,817,311	d17.0	466,178,748	492,406,781	d26,228,033	d5.3
Mineral Range.....	101	86,399	84,437	1,962	2.3	812,302	1,194,244	d381,942	d19.9
Minneapolis & St. Louis.....	1,647	7,100,005	9,882,192	d2,782,187	d28.2	62,564,152	65,028,758	d2,464,606	d3.7
Minneapolis, St. Paul & Sault Ste. Marie.....	4,243	20,564,907	29,243,367	d8,678,460	d29.7	192,892,923	228,996,324	d36,103,401	d16.0
Northern Pacific.....	6,570	65,474,398	69,656,153	d4,181,755	d6.0	511,485,161	486,258,390	25,226,771	5.2
Oregon-Washington R. R. & Nav.....	2,065	21,719,394	21,945,863	d226,469	d1.0	180,124,938	143,398,480	36,726,458	25.6
Spokane, Portland & Seattle.....	555	6,022,220	6,710,162	d687,942	d10.3	61,955,388	53,219,128	8,736,260	16.4
Total, Northwestern Region.....	47,182	422,257,141	497,743,736	d75,486,595	d15.0	3,518,422,302	3,511,343,314	7,078,988	0.2
CENTRAL WESTERN REGION									
Arizona Eastern.....	378	1,132,833	1,251,718	d118,885	d9.5	9,815,956	10,721,227	d905,271	d8.4
Atchison, Topeka & Santa Fe.....	8,646	112,484,239	119,944,738	d7,460,499	d6.2	1,119,734,359	979,691,043	140,043,316	14.3
Chicago & Alton.....	1,051	20,803,864	25,093,754	d4,289,890	d17.1	172,197,276	175,528,923	d3,331,647	d1.8
Chicago & Eastern Illinois.....	1,131	17,077,470	17,528,418	d450,948	d2.6	148,011,708	138,589,232	9,422,476	6.8
Chicago, Burlington & Quincy.....	9,373	106,077,725	119,877,176	d13,799,451	d11.5	884,684,032	877,979,360	6,704,672	0.8
Chicago, Peoria & St. Louis.....	247	942,238	1,175,352	d233,114	d19.8	7,811,430	9,024,844	d1,213,414	d13.4
Chicago, R. I. & Pacific (incl. C. R. I. & G.).....	8,209	107,056,730	110,755,249	d3,698,519	d3.3	880,784,624	790,086,002	90,698,622	11.5
Chicago, Terre Haute & S. E.....	374	1,901,278	1,911,368	d10,090	d0.5	17,396,399	15,543,981	1,852,418	11.9
Colorado & Southern.....	784	7,029,620	7,574,218	d544,598	d7.2	55,017,005	53,661,117	1,355,888	2.5
Denver & Rio Grande.....	2,652	15,516,137	24,471,484	d8,955,347	d36.6	146,477,318	150,961,127	d4,483,809	d3.0
Denver & Salt Lake.....	235	769,957	929,214	d159,257	d17.1	5,116,577	7,259,374	d2,142,797	d29.5
El Paso & Southwestern.....	1,028	8,227,094	5,781,082	2,446,012	d2.3	59,068,255	57,645,247	1,423,008	2.5
Los Angeles & Salt Lake.....	1,168	10,591,013	11,391,914	d800,901	d7.0	104,703,044	102,339,842	2,363,202	2.3
Northwestern Pacific.....	507	10,626,956	11,661,194	d1,034,238	d8.9	93,617,377	96,122,885	d2,505,508	d2.6
Oregon Short Line.....	2,336	19,206,601	22,681,854	d3,475,253	d15.3	174,755,111	160,367,026	14,388,085	9.0
Panhandle & Santa Fe.....	773	3,232,284	3,877,070	d644,786	d16.6	37,696,808	31,041,664	6,655,144	21.4
St. Joseph & Grand Island.....	258	1,181,002	1,339,784	d158,782	d11.9	10,776,427	10,407,986	368,441	3.5
Southern Pacific.....	705	134,066,390	144,830,557	d10,764,167	d7.4	1,317,120,094	1,077,307,498	239,813,596	22.2
Toledo, Peoria & Western.....	248	1,801,863	2,134,503	d332,640	d15.6	14,313,620	16,003,254	d1,689,634	d10.6
Union Pacific.....	3,610	67,562,694	73,484,946	d5,922,252	d8.1	566,193,290	469,956,398	96,236,892	20.5
Western Pacific.....	1,011	4,500,000	7,243,836	d2,743,836	d37.9	(*)	(*)	(*)	(*)
Total, Central Western Region.....	44,744	651,787,988	714,939,429	d63,151,441	d8.8	5,825,290,710	5,230,238,030	595,052,680	11.4
SOUTHWESTERN REGION									
Fort Worth & Denver City.....	454	9,270,167	6,733,104	2,537,063	37.7	54,657,448	45,041,807	9,615,641	21.3
Gulf Coast Lines.....	920	6,968,587	4,261,683	2,706,904	d3.5	57,348,834	53,860,783	3,488,051	6.5
Gulf, Colorado & Santa Fe.....	1,937	16,122,924	15,330,072	792,852	5.2	148,997,925	103,605,678	45,392,247	43.8
Houston & Texas Central.....	887	7,025,500	8,179,428	d1,153,928	d14.1	52,318,020	53,805,661	d1,487,641	d2.8
Houston East & West Texas.....	232	1,318,113	1,770,517	d452,404	d25.5	11,338,115	10,876,134	461,981	4.3
International & Great Northern.....	1,160	12,721,541	15,808,396						

Conditions in Central Western Region

Unusually satisfactory traffic conditions for the present period of the year were reported by Hale Holden, regional director of the Central Western region, for the month of November.

A summary of Mr. Holden's report follows:

Conditions generally were favorable to operation. The influenza epidemic, so pronounced during the month of October, continued during the early part of November, but not to the extent of causing any serious interruptions in the movement of business and no accumulations or congestions of consequence occurred. The car supply was ample to meet all requirements. As a result of decreased demand for coal and general loading, a surplus of coal and box cars has been accumulated on practically all roads. The large amount of grain in storage at the principal primary markets (utilizing from 70 per cent to 85 per cent of total elevator capacities) made necessary the continuance of the permit system, which plan accomplished the purpose intended with general satisfaction.

Car loading was as follows:

Total Cars Coal Loaded			
1918	1917	Decrease	
142,955	170,696	27,741	
 Total Cars Grain Loaded			
27,384	27,173	Increase	
	211	.8	
 Total Cars Livestock Loaded			
70,080	61,437	Increase	
	8,643	12.3	
 Total Cars Revenue Freight Loaded			
1918	1917	Decrease	
515,160	594,254	79,094	
		13.3	
 Total Cars Revenue Freight Received From Connections			
1918	1917	Decrease	
275,197	299,840	24,643	
		8.7	

The heavy decrease in coal loading is explained by lack of market resulting from heavy storage supplies and reduced demand.

Livestock.—Kansas City market handled a total of 16,913 cars inbound, an increase of 2,031 cars or 13.6 per cent; outbound 6,760 cars, an increase of 230 cars or 3.5 per cent. South Omaha market had inbound 11,488 cars, an increase of 464 cars, or 4.2 per cent; outbound 3,643 cars, an increase of 1,760 cars or 32.6 per cent. St. Joseph market had inbound 6,819 cars, an increase of 1,931 cars or 39.5 per cent; outbound 1,742 cars, an increase of 346 cars or 24.8 per cent.

Oil Traffic.—Operated out of the Mid-Continent fields a total of 544 special oil trains, with 14,336 cars, an average of 26 cars per train, of which the Santa Fe road handled 119 trains, with 3,406 cars an average of 29 cars per train.

Troop Movements.—The number of troop movements decreased materially compared with previous months. A total of 42 special troop trains, with 15,632 men were operated during the month, in addition to which about 9,000 men discharged from the service were handled.

Coal Traffic.—The coal situation in the Illinois, Indiana, Iowa, Colorado, Utah and Wyoming fields during the month of November has been easy from a transportation standpoint. The car supply was more than ample, the daily reports of the coal roads showing accumulatively many more cars available than the mines were ordering. The decrease of 16.3 per cent as shown in tabulation above, shows the lowest loading since June. The decrease was primarily due to lack of market, although the two peace day celebrations and Thanksgiving also contributed to the result. Indications are that there will be very little change in the situation during December and the use of storage coal will result in continued light shipments from the mines.

Sailing Day Plan.—During the month of November the Sailing Day Plan has been established at twenty additional smaller stations, resulting in a saving of 508 cars per week. The total saving since this work was inaugurated now amounts to 4,672 cars weekly. Loading for the week ending November 9, as a test, indicates an increase in the average weight per car, from 13,414 to 14,737 pounds. The Sailing Day Committee is giving considerable attention to the loading of cars to avoid transfers and has already established through cars from San Francisco to New York and from Ogden and Salt Lake City to Chicago and expects shortly to have through cars from California points to Chicago.

Terminal Situation.—All of the large terminals in the region have been operating effectively and there has been no congestion in carload or less than carload business. All terminal managers report a free movement through their terminals and generally satisfactory conditions. There has been a full supply of warehouse labor at terminal freight houses and business has been handled with remarkable dispatch.

Number of Men in Car and Locomotive Departments, November 16, 1918

Car Department	1918	1917	Increase	Per cent
Locomotive Department....	65,213	58,528	6,685	11.4
Total.....	88,916	80,219	8,697	10.8
Total cars on all lines.....			375,248	
Number of cars bad order.....			18,048	
Per cent in bad order.....			4.8	
Number cars bad order same date last year.....			18,949	
Decrease			901	—4.7%

Number of Locomotives Turned Out of Shop

1918	1917	Increase	Per cent
814	691	123	17.8

We have given general overhauling to 19 B. & O. locomotives at shops in our territory and we are working at the present time on 22 more. We still have 44 western locomotives loaned to eastern lines and in service there; many of our new locomotives being turned out of the shops in the east are assigned for temporary service to some eastern lines. We received from the builders during the month of November, only 19 new locomotives on our 1918 allotment.

Maintenance of Way.—Federal managers as a whole, report the condition of their track and property to be as good as it was last year with few exceptions.

Saving in Passenger Train Mileage.—During the month of November there were the following reductions in train mileage:

Train miles	
C. & A. trains 62 and 65 between Chicago and Peoria, annual saving	113,150
Readjustment Wabash local train service, annual saving.....	197,974
Readjustment Western Pacific and Southern Pacific service in Nevada and California, annual saving.....	71,175
Total.....	382,299

In addition the Southern Pacific discontinued two round trips per day of motor car service between Oroville and Marysville, thereby effecting a saving of 37,230 miles per annum. There was no passenger train mileage added during the month, so that the savings mentioned are net. Several lines were also able to discontinue one or more sleeping cars.

Passenger Traffic.—The passenger travel during the month of November was light. This was in large part due to influenza epidemic. The cessation of troop movements to ports of embarkation also had its effect upon passenger earnings. The work of demobilization which is now in progress means a heavy movement from cantonments. Additional facilities and ticket sellers have been installed to handle the movement.

Dining Car Service.—After the dining car service had been in effect a month the chief passenger traffic officers of lines in this region were asked to develop how the service is regarded by the public. Their reports indicate general ap-

proval of the change from a la carte to table d'hote luncheons and dinners. Southern Pacific for instance, advises that in October they served 81,880 table d'hote meals, and during that time received but four complaints from passengers who stated they preferred a la carte service. Of course, this does not indicate that all the balance prefer table d'hote service, but the fact that only this inconsequential number expressed disapproval of the change shows quite clearly that it has been received with popular favor.

Unification of Facilities.—There have been some minor unifications of facilities in the Alton terminal resulting in a saving of \$500 a month in the payroll. The consolidations in the vicinity of Salt Lake City and Ogden are progressing favorably. Some minor consolidations have been made in the Southern Pacific and Western Pacific territory amounting to \$1,650 a month. On November 7 consolidations were made of the facilities of the Rock Island and Santa Fe at Chickasha, Oklahoma, resulting in a net saving of \$710 a month. There are a number of similar consolidations under consideration and progress is being made as rapidly as conditions permit.

Traffic at Principal Termini

The Railroad Administration's weekly statement showing the traffic handled by the railways under federal control at 25 of the more important railroad termini of the country during the week ending November 16, shows a decrease of 13.29 per cent in the tonnage and a decrease of 14.83 per cent in the number of cars used, as follows:

	Cars	Tons	Cars	Tons
Atlanta	1917	1918	1917	1918
Birmingham	2,720	2,032	68,475	54,802
Boston	5,128	4,739	216,177	204,870
Buffalo	8,201	6,641	125,547	132,076
Chicago	8,110	8,002	288,124	323,947
Charleston	52,580	44,782	1,676,423	1,478,546
Cleveland	1,138	1,753	19,442	34,892
Duluth and Superior	9,474	8,826	346,244	327,356
Galveston	26,681	18,797	1,174,198	801,799
Hampton Roads	1,660	1,559	40,045	36,026
Kansas City	13,012	11,737	543,652	531,805
Los Angeles	7,933	7,487	182,203	170,453
New York	1,928	1,456	46,231	45,205
New Orleans	29,335	24,323	700,910	628,837
Omaha	4,472	5,279	129,493	165,960
Portland, Ore.	3,807	3,002	103,590	86,342
Philadelphia	1,977	1,768	54,924	40,476
Pittsburgh	18,533	15,045	546,837	353,139
St. Louis	7,328	6,602	271,777	245,388
Seattle	13,051	10,864	441,735	355,782
San Francisco	2,779	2,857	80,791	85,321
Savannah	2,666	2,771	71,727	102,507
Tacoma	1,751	1,463	36,212	29,941
Twin Cities	1,274	1,005	36,184	30,508
Toledo	12,771	9,398	326,098	238,484
Total.....	246,930	210,314	7,882,947	6,834,898
Decrease		36,516	.....	1,048,049
Average to . . per car.....		=14.83%	31	=13.29%

In Case of Fire

Circular No. 67 provides that in cases of loss of or damage to property by fire while under federal control, the matter should be handled on the following basis:

First—Reports of all fires involving property under federal control are to be made in accordance with instructions heretofore or hereafter issued by the regional directors as directed by the Division of Finance and Purchases, Fire Loss Protection Section.

Second—In the case of damage by fire to any property under federal control, other than rolling stock equipment, which will be governed by special rules or practices now or hereafter in force, there should be an immediate determination by the federal manager, subject to the approval of the regional director, as to re-building.

Third—If the decision is to rebuild either in kind or on a different plan or with enlargements, the federal manager, with the approval of the regional director, shall determine upon such expenditures as may be required for the replacement of property in so far as such expenditures are chargeable to operating expenses. The approval of the director of the Division of Capital Expenditures shall be secured in all

cases involving expenditures chargeable to additions and betterments.

Fourth—Adjustments of fire losses, other than loss of rolling stock equipment, are to be made as between the corporation and the United States Railroad Administration as follows:

An immediate effort should be made through the staffs of the federal managers to arrive at an agreement with the corporation as to the value of the property of the corporation destroyed or the amount of the damage due to the fire at the time of the fire, in case the property is not restored or replaced, or as to the cost of restoration or replacement thereof, chargeable to operating expenses, and the cost of such part of the restoration or replacement as is chargeable to investment in road and equipment, respectively. Such agreement shall be subject to the approval of the regional director and of the directors of the Divisions of Finance and Purchases and of Public Service and Accounting and shall be filed by the federal manager with his federal auditor. In case of failure to agree with the corporation, the amounts chargeable shall be determined under regulations established by the director of Public Service and Accounting.

Export Situation

According to the report of the Exports Control Committee for the week ended December 14 much progress has been made in disposing of U. S. army freight and freight for the Allies. War materials of all kinds intended for shipment to the Allies and not now needed are rapidly being disposed of in this country through the various governmental agencies.

Provisions on hand during the week for the Commission for Relief of Belgium amounted to 89 cars.

The Delinquent Bureau has succeeded in arranging for the clearance of a lot of corn syrup which has been held at the terminals for a long time on account of the prohibition against the exportation of this commodity when treated with bisulphide of soda.

According to latest advices, the Food Administration's program for the remainder of December indicates that sufficient ocean tonnage has now been allocated to take care of all demands.

For the week ended December 5 there were 229,566 tons of grain in elevators at North Atlantic ports, while 194,894 had been cleared. At the Gulf ports 216,526 tons of grain were in elevators, while but 48,016 had been cleared.

It is expected that the vessel program will show a decided improvement at the Gulf ports and create a full elevator turnover.

Rates for Clergy

The Railroad Administration proposes to put into effect on January 1 standardized arrangements whereby ministers of the gospel, brothers of religious orders, sisters of charity, deaconesses and others engaged exclusively in religious duties will be accorded the privilege of purchasing tickets at one-half the normal one-way passage fare, with no reduction in the sleeping-car rate. The concession will be administered by clergy bureaus maintained in New York, Atlanta and Chicago, operating under the supervision of the several passenger traffic committees.

Lehigh Valley and Other Contract Signed

Director General McAdoo has signed the compensation contract of the Lehigh Valley providing for an annual payment by the government of \$11,321,233.25, the amount of the "standard return" as certified by the Interstate Commerce Commission. The director general also signed the contract of the Buffalo, Rochester & Pittsburgh, on Thursday, providing for annual compensation of \$3,276,410. The contract with the Great Northern was expected to be signed on the same day.



Camouflaged Standard Ammunition, Supply and Fire Control Car for Railway Artillery in Use with General Pershing's Army

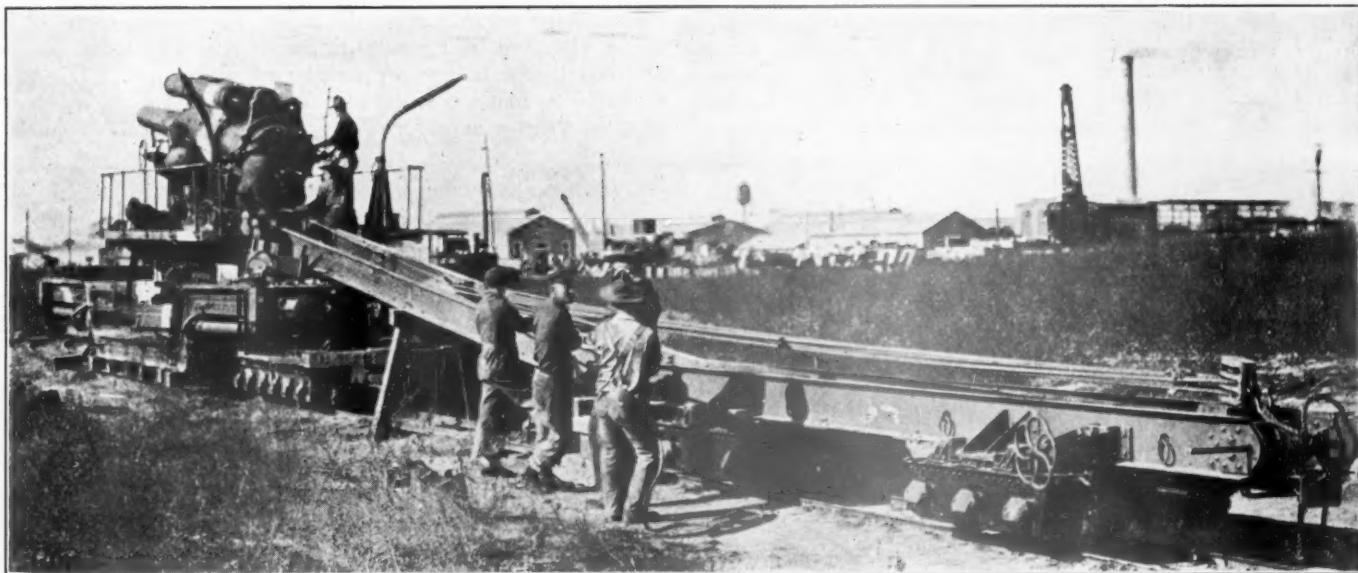
The War Department Railway Artillery

Shown to Public for First Time at a Demonstration
at the Aberdeen, Md., Proving Grounds

A DEMONSTRATION of the various types of artillery developed by the Ordnance Department of the U. S. Army for use during the war with Germany was held, at the proving ground at Aberdeen, Md., on Tuesday, making public for the first time the various types of guns on railway mounts which were used in France or will be used for mobile coast defense batteries in this country.

The demonstration included 7-inch, 8-inch, 12-inch, 14-

being able to handle it with ease. The car is of a special design adopted by the Ordnance Department after much experimentation, and is a standard car for mounting several different calibers of guns. The elevating mechanism enables the gun to be raised from 0 to 42 degs. elevation by one man. This gun fires a projectile weighing 200 lb. a distance of 12½ miles and may be fired from any position of track selected. The car is raised about an inch by means of jacks built into



Eight-Inch Railway Mount Narrow Gage Equipment
Showing Method of Placing the Gun on Narrow Gage Car for Movement to Front Over Narrow Gage Lines in France.

inch and 16-inch guns on railway mounts, some of which are illustrated herewith. A 14-inch gun on railway trucks which was used in France by the Navy was described in the *Railway Age* of November 29, 1918.

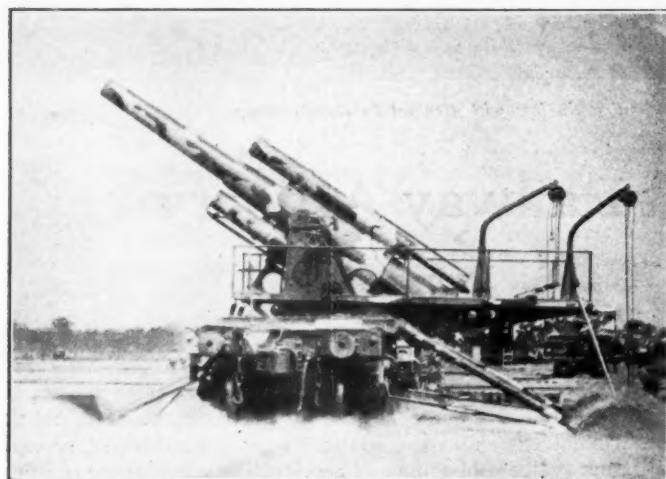
The eight-inch gun is mounted on a carriage having a traversing mechanism by means of which the gun can be traversed around the entire azimuth of 360 degs., one man

the underframe and a firing platform of oak cross-ties placed under it, taking the weight off the trucks during action. Outriggers brace the car and afford greater stability. The total weight of the equipment and gun is 174,000 lb. It is the only mount of its kind in existence and is perhaps the highest type of railway mount in point of time element required to put it in battery position and its virtue of having all-around

fire. It can be placed in position anywhere along a railway track in 25 minutes and removed in the same time. It is possible to transport this mount on 60 cm. gage tracks by the use of special narrow-gage trucks which replace the standard-gage ones.

The gun is carried on a narrow gage transport car during transit and is returned to the mount by means of auxiliary equipment accompanying the train. This enables the battery to approach firing position over narrow-gage tracks, a feature of great importance in concealing lines of communication at the front.

The 12-inch sliding railway mount has no recoil mechanism, the energy of recoil being absorbed by friction produced by sliding the mount on the special track which supports it. It is operated on a curved track and is trained on the ob-



Eight-Inch Railway Mount at Instant of Firing

tive by moving the mount backward or forward. When the gun is fired it recoils about 10 inches and is moved back into its original position by means of a gasoline winch, electric motors, or by hand power.

The entire mount is 105 inches long, weighs approximately 600,000 lb., and is carried on four trucks of eight wheels each. It is so designed that it can be transported

nance Department, completely, with the exception of the gun itself, in 85 days.

After the track is laid and beam stringers placed, only about five minutes are required to move the mount into position and get it ready for firing. It may be removed from firing position in an equally short time.

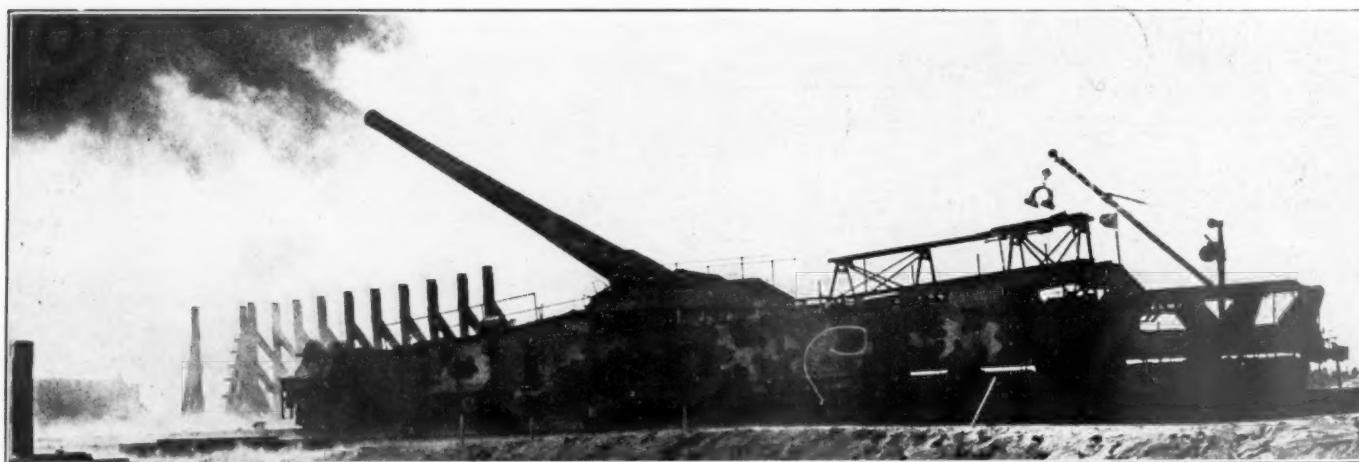
The 14-inch model E railway mount was designed prior



Eight-Inch Railway Mount

to the beginning of the present war, and is intended primarily for seacoast defense in this country. The gun and cradle are mounted on a heavy steel plate girder, the entire mount weighing about 250 tons. The gun is of the wire wound type 14 in. in diameter, and 47 ft. in length. The projectile weighs 1,200 lb. and the powder charge amounts to 400 lb.

The velocity of the projectile at the muzzle is 2,900 ft. per second and the range about 19 miles. The energy of recoil is partly absorbed by a hydraulic recoil brake, and the gun is returned to the battery by counter-recoil springs. The gun is placed in firing position on a cast steel bed plate which is adapted to give a traverse of 360 deg. The time required



Twelve-Inch 50-Caliber Long Range Gun on Sliding Railway Mount at the Instant of Firing

over all American or French railways and has been moved at the rate of 40 miles an hour. The gun on this mount is 12-inch caliber, 50 feet long, weighs approximately 145,000 lb. and is one of the most powerful guns in existence. It shoots a high explosive projectile weighing 700 lb. and has a range of approximately 28 miles. The muzzle velocity is 3,200 feet per second. This mount was built by the Ord-

to place this mount in firing position is approximately five hours, with a well-trained crew. Ammunition is carried in an ammunition car which accompanies the mount in a battery train. The rate of firing is one round every two minutes. This mount has the advantage of being adapted for use against moving targets such as battleships, as well as for use against stationary targets on land.

Development of a Standard Refrigerator Car

An Outline of the Department of Agriculture's Investigations and the Attending Results

By M. E. Pennington

Food Research Laboratory, Bureau of Chemistry, U. S. Department of Agriculture

A SHORT TIME AGO the Railroad Administration issued Mechanical Department Circular No. 7,** the opening paragraph of which reads as follows: "In order to insure the greatest possible degree of efficiency in refrigeration and conservation of foodstuffs, refrigerator cars having trucks of 60,000 lb. capacity or over, will, when receiving general repairs or being rebuilt, be made to conform to the following United States standard refrigerator car requirements." Then follow specific details and references to blueprints for the construction of the car in general, its insulation, its ice boxes and the many details which go to make up a refrigerator car. Throughout one finds that the railroads are instructed to build in conformity with the "United States standard refrigerator car."

Considering the fact that we have in this country more than 100,000 refrigerator cars, and that ultimately all will probably conform to the essentials just laid down by the Railroad Administration, it may not be amiss to review the circumstances which have led to the issuance of this circular.

In the latter part of the nineties and early hundreds the difficulties in the distribution of our perishables attracted an increasing amount of attention because the length of the hauls increased as more distant markets demanded supplies, and the losses from decay in transit kept pace with the distance traveled. Some of the shippers applied to the United States Department of Agriculture for assistance, among them the Georgia peach growers. In 1903 G. Harold Powell and his associates undertook to investigate the matter. They studied the effect on ripening of cooling the fruit quickly after picking and before loading in the car, as well as the development of decay in transit. Precooling, however, was not a reliable remedy because the insulation of the refrigerator cars of the south was, and is, insufficient to retain the chill imparted to the fruit and the air circulation in the cars was, and is, inadequate to transfer the refrigeration from the ice bunkers to the center and top of the load. This is a handicap which limits the distribution of the Georgia peach crop and from which the industry has never been able to escape.

From Georgia peaches the investigators were called to California oranges. The industry was severely handicapped because of decay in transit. Again the inadequacies of the refrigerator cars were apparent. The investigations of the temperature in cars in transcontinental trips brought out the differences in the different parts of the car and their relation to the excessive decay in the middle of the load and its upper portions.

In 1908 the Food Research Laboratory, which had been studying the effect of long cold storage on poultry, extended the work to the handling of the fresh goods in the packing houses and in transit. Our object was to prevent deterioration, and to that end the best packing house methods available were sought. However, we soon found that standardized methods at the packing house did not give standardized results at the market; in other words, the refrigerator cars

were a variable factor. It was not and it is not uncommon to find chickens on the floor at the bunker hard frozen, those quarterway of the car in a good chilled condition and between the doors green struck, and this in spite of the fact that the condition of the packages was practically uniform when they were loaded.

Then began the study of the construction of these cars. In 1913 the results were published as Bulletin No. 17 of the United States Department of Agriculture. The conclusions presented in that bulletin outline fairly well the lines of work since followed by the investigators and which have led to the information on which the construction of the standard refrigerator car is based. The concluding paragraph of the bulletin says, "It is eminently necessary that such questions as the most efficient and economic size of the refrigerator car, the exact amount of insulation required to insure the maintenance of low temperatures, or, conversely, to protect the contents of the car against frost, the equalization of temperatures in all parts of the car, and many others, be pressed for more exact and far reaching answers." The bulletin points out the importance of roof and floor construction in relation to insulation efficiency, especially the waterproofing of the floor. It also calls attention to the efficiency of the wire basket bunker which permits of abundant air access to the refrigerant.

It is needless to state that the defects found in the cars hauling plant products were identical with those hauling animal products. It was obvious, too, that no amount of work to teach better field, orchard and packing house methods would have the desired result—namely, freedom from decay at the market—until the construction of the refrigerator cars was suited to the work which they were expected to perform. To determine in detail what that construction must be opened a new phase of the problem.

It must not be inferred that the railroads were either indifferent or antagonistic toward this research work. On the contrary they had almost without exception cordially assisted the investigators. A number of them were willing to build a few experimental cars, and a few practically put their shops at our disposal.

In the course of the fruit and vegetable precooling work the investigators had observed the increase in efficiency when a slatted rack, a few inches above the floor, was used. The addition of such a rack to a refrigerator car seemed eminently desirable. Accordingly, we asked the railroads to add them to certain cars for trial purposes. The studies already reported in Bulletin No. 17 had shown the desirability of the basket bunker. To this we asked the roads to add an insulated, solid bulkhead, open top and bottom for air inlet and outlet.

By the early spring of 1916 we had ready quite a number of experimental cars built by four roads in as many shops. The details of construction varied widely. This we considered advisable because we first had to establish the fundamentals of construction, such as the type of bunker and the action of floor racks, regardless of the size or particular desirability of the car itself. To go into the details of the many experiments with various products in various parts of the country and under varied weather conditions will be a lengthy

*Abstract of a paper read before a joint meeting of the American Society of Mechanical Engineers and the American Society of Refrigerating Engineers.

**See *Railway Age*, November 8, page 810.

task, even for a government bulletin. What concerns us here are the broad facts and the deductions which have been drawn from them, especially those concerning air circulation and the amount and distribution of insulation.

Air Circulation

It did not take long to decide that the basket bunker, insulated bulkhead and a rack four inches off the floor, with lengthwise stringers and cross slats about three inches wide and about two inches apart, are essential for the distribution of the refrigerated air. The wire basket hanging free in the end of the car permits the warm air entering at the top to flow without obstruction over the entire surface of the ice, and as it cools, to fall to the floor. At the floor it is not pocketed, but finds a ready exit under the rack, and so along the car floor and up through the load, gathering heat as it goes and carrying it to the upper bulkhead opening where again the ice has a chance to absorb it.

If we place thermometers in the air of the car to determine its temperature at the lower bunker opening, again at the middle between the doors, then at the ceiling, midway of the car, then at the ceiling quarter way, and finally about 10 in. in front of the upper bunker opening, we find a steady rise in temperature, the upper bunker opening thermometer being the highest. Generally we find from two to four degrees difference between the air in the upper, middle part of the car and that at the upper bunker opening. If the thermometers are similarly placed in a car equipped with a box bunker with open bulkhead and without the floor rack, the graduations of temperature in the upper part of the car are just reversed. Here the temperature at the upper bunker opening is ordinarily from two to four degrees lower than at the middle of the car. This observation has been made again and again and is further confirmed by the performance of a box bunker combined with solid bulkhead and a floor rack, with which there is good cooling in the top of the load at the bunkers, but unsatisfactory results in the upper middle parts of the load. In other words, we have only a partial air circulation.

Even more striking are the results obtained when salt is added to the ice in the basket bunker combined with the insulated bulkhead and floor rack, or the standard type bunker, as it is now termed. So rapid is the removal of the very cold air from the bottom of the bunker that fruit and eggs may be rapidly cooled throughout the car without frosting the packages at the bulkhead. Of course, the bulkhead insulated with one or two inches of a standard insulator is an essential if the packages against it are to be protected from the frigid air close to the ice and salt, but that this protection is not due entirely to the bulkhead is proved by the pocketing of the cold at the bottom of the bunker when the box bunker with an insulated bulkhead is salted. Then the packages at the bottom of the load, next to the bunker, are frosted. In other words, there is no force to the air movement and it cannot be distributed with sufficient rapidity to prevent the intensive chilling of itself. With the standard bunker and floor rack and a lading such as cantaloupes or oranges, as much as nine per cent of salt may be safely used in the initial icing, and the same percentage or a little less may be used on the two successive days, by which time the load is cooled throughout. It is unnecessary to point out the great advantages accruing to the transportation of such perishables as berries, peaches and cherries by this ability to cool them rapidly while rolling. It is also of benefit to eggs which, because of the character of the commercial package and the tight load, are exceedingly slow to cool in the ordinary car. Indeed, the top and middle of the load is but little affected by the refrigerant.

The question of insulation has been more complex. We have not only a compound wall, but one which is continually

in vibration and which is moving constantly. To this constant movement of the insulator must be added the difficulties of making it continuous because of the framing of the car and the habitual use of tie rods and bolts which offer runways for heat. The sills as usually placed in the floor, the belt rails and the carlines were very real obstacles to the efficient placing of the insulation. The thickness of the insulator was by no means the only question to be answered; how it should be attached to the framing was almost as important. It was also necessary to determine the most vulnerable parts of the car and guard them accordingly.

Insulation

The thermometers which were fastened tightly against the lining of the car very promptly and consistently indicated that roofs and floors must be better protected than the walls and in the case of the floor and the lower part of the walls it is imperative to waterproof. Comparisons of cars having varying amounts of insulation, loaded with representative commodities, showed that for the safety of the load, as well as economy in loading and in refrigerant, it is necessary to have the equivalent of two inches of pure cork board in the side walls and ends, at least two and one-half inches in the roof and at least two inches in the floor, the insulation in the floor to be continuous from side to side and end to end. In other words, the insulation on the floor must not be broken by sills and it must be at least two inches of pure cork board.

It has not been possible, heretofore, to waterproof the floor. Consequently there has been wet insulation and a serious loss of efficiency. Therefore, the findings of the department emphasize the need of cork board in the floor.

The Government Standard Refrigerator Car

Such essentials of a refrigerator car as an adequate amount of insulation and air circulation had been agreed upon by the investigators prior to government control of the railroads, and certain lines had incorporated some or all of the findings into their new and rebuilt cars. In the standard refrigerator car * developed by the Railroad Administration, so far as possible, the trucks, draft gear, framing and other general construction features are standardized with the United States standard double wall box car. The essentials upon which rest efficiency in protecting perishables against heat and cold have followed very closely the findings of the investigators of the Department of Agriculture. The plans include unbroken insulation on both floor and roof. On the walls the insulation is continuous from door post to door post. It was not possible to devise a scheme by which the insulation could be run over the belt rails, but the exposed surface was reduced. All the insulation is applied in a solid mass, unbroken by air spaces. It is supported by pressure and not by direct nailing. The excess space afforded by the framing is left on the inner side, under the lining, to receive such nails as the shipper cannot be prevented from driving into the walls and which have played havoc with the insulation. Bolt heads and tie rod exits are protected by insulation. The bunker is a woven wire basket holding approximately 10,000 lb. of ice, surrounded by a two-inch space and separated from the body of the car by a bulkhead carrying at least one inch of insulation, and last, but far from least, is a floor rack, four inches in the clear, built of 2-in. by 4-in. runners with 1-in. by 3-in. cross slats $1\frac{1}{2}$ in. apart. This rack is hinged to the side walls. Each half may be turned up and the doorway section folds back to facilitate cleaning the car. The length of the car over end sills should be approximately 41 ft. and the loading space should be 33 ft.; it must not be more than 33 ft. 3 in.

The foregoing is a very brief description of the essentials of the car designed to protect perishables in transit which the

*See *Railway Age*, November 22, 1918, page 907.

Railroad Administration has designated as "standard" and to which the lines when rebuilding must conform. Such instructions to the railroads should insure quick results in an increase of reliable refrigerator cars. Of course, there should and doubtless will be a program covering the building of new cars to replace at least 10,000 so-called refrigerator cars now in the service which are camouflaged box cars and a menace to every pound of foodstuff loaded in them.

Future Developments

On the basis of a standard car the department is now predicated a standard icing service which should save foods and money. It is also working on standardized methods of stowing loads and the standardization of packages. The ability quickly to cool certain commodities in transit by the use of salt with the ice has given a new impetus to orchard, field and packing house handling, while the reasonable assurance of proper care in transit of such products as dressed poultry lends a stability to the industry which is much needed. There has been much discontent on the part of shippers of products requiring intensive refrigeration because they could not obtain such cars as the large meat packers are

using. The United States standard refrigerator car will carry meat hung from rails quite as successfully as the cars built especially for meat. In addition it will carry package loads on the floor under the meat better than the meat cars. An important difference in the standard car as compared with the meat car is the reserve of ice in the bunkers which are often amply supplied when the tanks of the meat cars need replenishing. Neither is there visible in practical results the advantages supposed to accrue from the retention of the brine, provided coarse rock salt is placed *on top of the ice* and so forced to bore its way through the whole mass before finding an exit. We have wasted much salt in the past, as well as ice and foodstuff for lack of knowledge.

For every standard car turned out of the shops there will follow a saving of food, a saving of money and a saving of labor. To that end the Department of Agriculture has worked long and patiently and to that same end the Railroad Administration has now issued Mechanical Department Circular No. 7, and has also indicated its intention of reminding the railroads of the instructions.

Truly, facts, faith and friendly co-operation have brought about a consummation long and earnestly desired.

Hard Knocks for McAdoo Five-Year Plan

Public Sentiment in All Parts of the Country Apparently Against Government Ownership and Alive to the Danger

THE FOLLOWING CLIPPINGS were selected without any attempt to discriminate as between different sections of the country or the value of editorial opinion or weight that might be attached to editorial opinion. They are simply a collection of editorials which were readily available, as might be easily proved by the inclusion of the conclusions of the Buffalo Courier.

An attempt was made in each case to quote that part of the editorial which most succinctly expressed the sentiment of the paper quoted.

[*New York Sun*]

Only nine days after President Wilson declared that he had no confident judgment of his own upon the subject, thus provoking a hearty, if good natured laugh in the Congress to which he "frankly" turned for counsel, Mr. McAdoo informs that same Congress that he has permission to say that the President is in favor of at least five years of governmental control, not on account of war emergency, but wholly of experimentation and possible preparation of public opinion for a momentous enterprise of paternalism and of vast extension of executive responsibility and power.

When did the President arrive at the confident judgment which was lacking in his intellectuals forty-eight hours before he sailed?

[*New York Times*]

Mr. Hughes said the other day that "it is regrettable, but it is true, that governmental enterprise tends constantly to inefficiency." Mr. Hughes is a witness whose testimony cannot be lightly disregarded. If we are to make this venture, it should be made with full understanding of what it means. But first of all we should understand that Mr. McAdoo's plan of five-year control puts the country on the straight road to government ownership.

[*Brooklyn Eagle*]

One result is that Mr. McAdoo, having ridden for a fall, has sustained one, plus a severe shock. Another is that the President himself fails to escape unscathed. Allowances may be made for him because of the tremendous pressure of other and even more momentous business, but for Mr. McAdoo it must be said

there are no excuses. Practically in one breath he has disclaimed government ownership proclivities and sought to continue public control long enough to insure it in perpetuity.

[*New York Journal of Commerce*]

One point made by Mr. McAdoo is that now, after the special dislocation by government control, "it is of the utmost importance to the commerce, industry and life of the American people that a comprehensive program of improvements to railroad prospects shall be carried forward over a period of at least five years," which would involve "expenditures of at least \$500,000,000 per annum, or \$2,500,000,000 for the five-year period." * * * If the railroads are put in condition for the return of peace conditions at such a cost, and the government supplies the funds on account of the financial stringency, shall that become a government obligation for directing operations? Or shall the corporations be bound to make the payments back to the government and be in a condition to do so from their earnings with all other obligations duly met?

There is no denying that there is a great problem here and it is of the utmost importance that it should be duly studied and wisely solved. It may be easier to have this accomplished with the best results for all concerned if the government direction is continued during the process than if the roads are turned back to the different corporations on such terms and conditions as may be devised with that great financial problem unsolved. It is not a matter for offhand judgment on such knowledge and such consideration as are at once available. The best minds concerned with the situation and the interests involved should give it their most thoughtful consideration.

[*Brooklyn Eagle*]

From but one point of view, which is that of the advocates of permanent operation by the government, is there an imperative necessity for haste. The present Congress will go into history in a few months. It will be succeeded by a Legislature which may—or may not—harmonize with Administration purposes. It is a foregone conclusion that the next Congress will make short work of anything calculated to commit the country to public ownership of its transportation facilities, and none will contend that the director general's program is short of a giant's stride in that direction.

[New York Tribune]

He pleads merely for a prolonged test of governmental operation. He professes to believe that this would not necessarily mean government ownership. But, whatever Mr. McAdoo thinks, or thinks he thinks, that is precisely what it would mean. If after only a few months it is so difficult to work out a plan whereby the roads may be fairly restored to their owners, what would it be after five years?

[New York Commercial]

Politics, there's the rub! What could the private corporation not do to attain efficiency and give service if relieved of that curse! Mr. McAdoo tells how detrimental to the transportation system of this country is the conflict between federal and state laws and regulations. He asks for a free hand and the use of the credit of the United States to carry out a comprehensive program of improvement. He can accomplish nothing of value in the space of two years while facing a change of management at the end of that period. * * *

Congress should protect the public against stock watering and the pyramiding of issues of securities such as ruined the old Rock Island and other railroads. There must be no discrimination in rates or service, but the railroads must receive a living wage just as their employees do. If the private owners were allowed to charge the rates Mr. McAdoo imposed, and to pool their traffic, equipment and terminal facilities, as he has been doing, they could serve the public as well as the government can.

[Houston Post]

Naturally, the observation in Director General McAdoo's report that his plan would serve to take the railroads out of politics will make men smile, it being one of the few jests Mr. McAdoo has perpetrated in the literature of his public service. Neither the McAdoo plan nor any other could accomplish that. * * *

This [the railroad problem] is easily the most complex of all our postbellum problems, since its solution must come out of a confusion of conditions, influences and considerations, not the least of which is that of political exigency. It is nothing short of a national misfortune that the determination of all the questions and factors at issue in the problem of transportation can not be had without the intrusion of partisan politics into the councils of those who must find the solution. * * *

Demagogery and ignorance have for years complicated our trans- portational difficulties. If experience is worth anything at all, it should teach us that politicians are not competent to solve such difficult economic problems, largely because they link their own unimportant political fortunes with these questions of prime concern. The very fact that the recent taking over of transportation control by the government was rendered necessary because the law prohibited the owners from doing what was essential to the highest measure of effective service is proof enough that the politicians have not improved transportation conditions in the United States during the long period in which they have tinkered with a great interest of which they were ignorant.

[Cleveland Plain Dealer]

The country knows pretty well how government control works in war time. It has no opportunity to learn how it may work in peace, nor, says Mr. McAdoo, will it have opportunity to learn unless further legislation is passed by Congress. * * * America's future railroad policy is too big a question to be settled upon inconclusive evidence. Plenty was to be said in favor of government control as a war measure; what can or should be said for it as a peace proposal, who knows? Why not try it for a strictly limited period and find out?

[Minneapolis Tribune]

If Mr. McAdoo wanted to create a sensation, stir things up and make talk, he ought not to be disappointed in the result. If he wishes to afford a fair opportunity for putting into effect the President's third alternative of modified private control without government ownership, he is in entirely too big a hurry. * * *

How characteristic of this administration! It made a gesture toward consultation and co-operation with Congress, a concession so unusual as to create a smile in Congress when it was proposed, but within a fortnight that is forgotten and the old habit of dictating to Congress reasserts itself. It is impossible

that this announcement has been made without the sanction of the President, if not at his instigation. * * *

It remains to be seen how far war powers go, and whether Congress can be forced to adopt at once one or the other of the alternatives offered, or whether it can take up the question with sufficient deliberation to work out a solution "in the interest of the public and in fairness to the owners."

[New Orleans Times-Picayune]

It seems strange that the President, within nine days after declaring that he had "no answer ready" and urging Congress to institute a "complete and impartial study" of the whole railway problem, should reverse his judgment and indorse a recommendation of snap judgment—for that, as it seems to us, is what Mr. McAdoo's proposal amounts to. * * * Sound public policy requires that the people be consulted in this vital matter—or at the very least, that the Congress of their latest selection, and presumably closest to their views, be permitted to deal with it.

[The Topeka Capital]

Any way the railroad problem is looked at, the importance of a decision by Congress as to the future policy stands out. If this decision is made in the next year, then an extension to five years may be unnecessary. If no decision is made for five years, then public and railroad owners and shippers will be engaged in constant wrangling over the vast expenditures for the railroads, different roads will be wrangling over expenditures and extensions on their account for or against their ultimate interest in comparison with others, and there will be no touchstone by which these disputes can be determined.

[Chicago News]

It is very singular that this "only practicable and wise alternative" should have been informally suggested as a sort of after-thought to chairmen of congressional committees. If the President fully approves of the idea, why did he not directly and personally submit it to Congress? * * *

There are formidable arguments against the plan. Certainly a five-year period of government control might make the return of the railroads to their owners much more difficult than now, if not practically impossible. A comprehensive plan of improvements made by government order according to an unfettered government program and duly charged against the properties so improved might make them when "unscrambled" of small value to their owners.

[The Detroit Free Press]

It seems to us that in a general way, Mr. McAdoo convicts himself of failure to "prepare for peace in time of war," that at the least he confesses to a neglect of a part of his duty which demanded that management of the transportation lines be carried on with a view to their ultimate restoration to their real owners as well as with a view to immediate needs of the country. So far as his contention that a five-year extension of government control would take the railroad question out of politics is concerned we quite fail to follow his reasoning. Only the privately run enterprise can be kept out of politics. Public ownership or control immediately and as a matter of necessity, places an enterprise in politics. Its administration becomes a matter of public policy.

Possibly an immediate return of the roads to their owners would be hurtful to public interest and to the railroads themselves. Mr. McAdoo knows best what the situation may be as the result of his administration. However, an immediate return is not necessary, nor called for. All that the law demands is a restoration within a year and nine months after the war is formally concluded, and if the railroad properties cannot be put into shape for restoration within what will probably be a two-year period, a condition exists that ought not to exist, and the assertion by the Railroad Administrator that it does exist should almost warrant an investigation by Congress.

[Spokane Spokesman Review]

Secretary McAdoo recently declared there was danger of the railroad question becoming a political issue in the election of 1920. His plan of extending government ownership to 1920 would make that question a very lively issue. There is only one way to prevent that—for Congress to settle the matter, one way or the other, before the presidential campaign of 1920.

[Boston Herald]

This would mean that two million railroad employees in the next presidential election, would be asked to decide whether they preferred to work for the government, as the Democratic party in Congress and the cabinet had arranged, or for private owners, as the Republican opposition would be likely to provide for.

[Virginian Pilot]

With all due deference to the judgment of Mr. Adoo, who expresses the conviction that the proposed extension of government control would not mean permanent government ownership, it would be nothing less than miraculous if such was not the final outcome. And what permanent government ownership, in time, would mean is a prospect not to be contemplated with any degree of equanimity by anyone who would not be content to see the country's material progress and prosperity handicapped by inefficient transportation service, its tax-payers bled for the benefit of multitudes of placemen and a large beginning made towards perversion of socialistic purposes of the democratic principles underlying the Republic founded by the fathers.

[St. Louis Globe-Democrat]

Mr. McAdoo's argument that extension of railway control for five years would "give composure to railroad officers and employees" needs a diagram. He got no composure, resigning so he could make money enough to provide for his family. Some of the officers may be forced to the same course, although if they know nothing but the railway business they will not have Mr. McAdoo's advantages. * * *

There is no need to experiment with the 250,000 miles of American railways for five years. Experience in government ownership of 223,907 miles of railway throughout the world for long and short periods is available for the information of Congress. Let it consider it and act upon it as soon as possible.

[Albany Journal]

The reasoning is not at all clear. Rather, it is confusing. It indicates the purpose somehow to arrive at the presented conclusion. And insistence upon that conclusion indicates the desire for establishment of government ownership. * * *

The administration having failed to secure compliance with its demand for the election of a Democratic Congress through whose subserviency to executive dictation the socialistic purposes of the present administration could have been accomplished at leisure, is attempting to use the present Congress as an agency for "nailing" some things to suit its purposes during the brief remaining period of its existence.

[Boston Transcript]

Congress can count upon a large body of popular support, we believe, if its members will take the President at his public word and respond to his hope, publicly expressed, that "they will have a complete and impartial study of the whole problem instituted at once and prosecuted as rapidly as possible." That does not mean that we must resort to five years of "watchful waiting." It means the adducing of all the evidence quickly, then a decision, then the legislation necessary to make that decision effective. All of this can be done before 1920 if the current Congress will commence the investigation.

[New York American]

Mr. McAdoo has shown splendid good sense in his letter to Representative Sims, promulgating the plan to give public operation of the railroads at least a sporting chance to show what it can do under the easier peace conditions, by continuing public operation for five years.

It is too bad that Mr. McAdoo felt compelled to relinquish his management of the railroads. If he could handle them so well in war time with responsibility divided between the railroads and the Treasury, what could he do in normal times if he devoted his great energies to the railroad management alone!

[New York Herald]

On every side industries are rapidly returning from war emergency conditions to the normal and the railways may as well join the procession. The experiment with unified federal operation has been expensive, but it has not been without its value,

as in demonstrating the practicability of sending freight by the shortest routes regardless of the "systems" to which the lines belong and in the joint use of important terminals. These lessons will not be lost. Meanwhile we face the fact that important civic and commercial organizations favor a speedy return of the lines to private ownership and that Mr. McAdoo, like President Wilson, admits that he has formed no opinion as to the best disposition of the railroad problem.

An extension of federal operation for five years would in all human probability lead to government ownership, and to that the best thought of the country is unalterably opposed.

[New York World]

To extend the period from twenty-one months to five years would merely afford Congress the opportunity for procrastination. It would be tempted to let matters drift, postponing to the future what should be done with diligence. The uncertainty that prevails today would be needlessly prolonged. The future of the railroads would be left in doubt for no good reason except that Congress found that the easy way to shirk a difficult problem.

[Macon Telegraph]

If they are to go back, and President Wilson has expressed his willingness to restore them as soon as a plan is worked out, it had better be as soon as possible. Mr. McAdoo's idea of a five-year period in which to arrive at a policy would create in that very lapse of time difficulties and problems greater than those its extension is designed to dissipate. In short, if they are to go back, and they should, they'd better be "going while the going is good." The farther in they go the more desirable—and the harder—it will be to get them out.

[Wilmington Every Evening]

No doubt the best results of our experiment in the line of government control and operation of the railroads is the revelation that has been made of how the different railroad systems may be co-ordinated in the details of their operation, in the direction of giving a much more effective service in transportation, especially of freight. But it need not be feared that the lesson thus learned will be forgotten after the railroads are restored to separate corporate control. The benefits surely will be continued. The general opinion of the public, we believe, is that the railroads should be restored to their respective corporate control and operation as soon as may be possible. There is no assurance of real benefit to the people in the continued operation and control by the Federal government.

[Philadelphia Ledger]

What he says to Congress is, in effect, give us more time—five years in fact—to carry through the experiment of unified control, otherwise the present administration will turn the railways back to their owners before the end of the present session and leave to the incoming majority the heritage of complicated litigation which is inevitable.

[Indianapolis News]

He [Mr. McAdoo] also declares that an ounce of experience is worth a ton of theory. In this connection he might consider whether he and the nation are not going to get tons of experience if they keep the railroads for a five-year period.

[Knoxville Sentinel]

The truth is, we suspect, that the politicians need the railroads in their business and above everything else want them to be kept in politics, while the railroad executives want to continue the government's Gibraltar of financial backing behind the railroads and let the control of the properties at the same time pass to them.

But Wilson and McAdoo are a canny pair of Scotchmen—if Mac is not a Scotchman he ought to be—and it is next to impossible to outwit a Scotchman in a dicker and get the better of him.

[New York Tribune]

Many of the considerations advanced by Mr. McAdoo are of undoubted force. There is a consensus of intelligent opinion that the railroads ought not quickly to go back to private control. Action by Congress will undoubtedly be necessary to prevent what the President called the "disservice" of returning to "the old conditions unmodified." But all this only heightens

the unwisdom of attempting such short-cuts, as Mr. McAdoo advises. To turn a blind eye upon complexity does not make it simplicity. And hasty improvisations of policy, no matter from what source, can never be a satisfactory substitute for patient study and cautious experiment.

[Hartford Courant]

The hitch about taking the properties back at once, which is so urgently advocated, is in their condition. They are indebted for vast amounts of money to the government, which from time to time makes advances. Numerous January dividends already announced are explained to hinge on the government providing the money to be paid out. What would be the condition of a road, if it went back into the stockholders' hands now, is not made clear.

[New York Sun]

There is no justice and there is no reason in Mr. McAdoo's conclusion that if the director general cannot have at once another five-year license for further laboratory work on the transportation system of this nation the government must pick up the pieces and throw them all in a jumbled wreck back at the heads of the owners from whom they were taken without a notice of five seconds, with the well ordered systems immediately so reshaped that they are scarcely recognizable today by their own parents. After its complete dislocation of the American railway system the government could not do such a thing as that without bringing upon itself the irrefutable charge that it had muddled and mussed this railway problem only to duck it when the time came for it to make good on its experiment or to try.

[Buffalo Courier]

Mr. McAdoo has certainly demonstrated that he is a high officer whose judgment in dealing with large affairs is entitled to respectful consideration.

[St. Louis Republic]

Secretary McAdoo says that unless Congress agrees to extend railroad control for a period of years the present effort to revive river traffic by government aid may not hold much promise.

The idea is that if the railroads are unleashed they will set about killing the infant river industry. If Congress should believe there is truth in that view, and there may be, then, assuredly, steps should be taken to keep a firm hand on the situation until river traffic is well established. In the long run, the waterways will not need to ask favors. * * *

Any policy of discouragement, any policy which would mean the loss of what has been gained is unthinkable.

Accident Prevention "at the Source"

AS THE TWIG IS BENT the tree's inclined, as we all know; and this fundamental fact has been recognized by the safety-first specialists of numerous railroads in their varied and ingenious methods of introducing the propaganda into the common schools, large and small, city and country. To give system and regularity to this useful teaching, and with a view to making the benefits of the lessons permanent and at all times available to all pupils, the public schools of Rochester, N. Y., are using a regular course of instruction, an outline of which is shown below. This outline, prepared by A. C. Clark, a former principal of one of the grammar schools of that city, is said to be giving very satisfactory results.

A COURSE OF STUDY IN ACCIDENT PREVENTION

First Grade: The Home.

Slogan—"Better be safe than sorry."

1. How I may help:
 - a. Put away playthings;
 - b. Straighten rugs;
 - c. Keep halls and stairways clear;
 - d. Put sand or ashes on icy walks.
2. Dangerous playthings:
 - a. Pointed scissors, knives, toy pistols, snowballs, firecrackers.
3. Dangerous places to play:
 - a. Near lake, river or canal;
 - b. Fences, porch rails, banisters;
 - c. High windows and trees.

RAILWAY AGE

4. Caution against:
 - a. Scalding liquids;
 - b. Tasting of unknown things—medicines, plants;
 - c. Teach the "Poison" label;
 - d. Animal kicks and bites;
 - e. Interfering with gas fixtures, stoves, lamps, etc.

Second Grade: Common School Accidents.

Slogan—"You have no right to take a chance; someone else may have to take the consequences."

Review work of previous grade.

1. Responsibility for the care of younger children.
2. The danger of pushing, shoving or tripping others.
3. Danger of riding a bicycle or of roller skating near the school.
4. Danger of throwing snowballs, stones or other things.
5. Necessity for order in fire drill.
6. Care for ourselves and for others in games and at periods of relaxation.

Third Grade: Street Accidents.

Slogan—"Folks who have no wings must use their wits."

Review work of previous grades.

1. Traffic officer.
2. How street accidents may be avoided:
 - a. Play in yard or playground;
 - b. Look both ways before crossing the street;
 - c. In passing behind a moving vehicle always look to see what is coming;
 - d. When crossing the street look first to the left and then to the right;
 - e. Cross at cross-walk;
 - f. Running into streets;
 - g. Hitching onto wagons and automobiles.
3. Why is there a city ordinance against playing ball or snowballing in the street?
4. Notify your teacher or a policeman if you find dead branches or hanging limbs in trees.
5. All hanging wires are dangerous. Never touch a wire that is swinging, or lying on the ground. In case you find one, stand guard over it until someone comes. Have them notify the Rochester Railway & Light Company.

Fourth Grade: Street Car Accidents.

Slogan—"Get the safety habit, practice it and preach it."

Review work of previous grades.

1. Things to be observed when using a street car:
 - a. Always ride inside the car;
 - b. Know the right way to get on and get off a street car;
 - c. Be cautious when crossing opposite bound tracks from behind a car.

Fifth Grade: Travel Accidents.

Slogan—"Stop, look, listen."

Review work of previous grades.

The essential part of the work of this grade shall be to educate the pupil in the rules of the road. Have children collect and make cautionary signs and make a practical use of the best of them.

1. Railroad wrecks, their cause and prevention.
2. Safety-First campaigns of transportation companies.
3. Danger of standing on the platform of a car, or of letting any part of the body project from the car.
4. The danger of grade crossings.
5. Traffic regulations:
 - a. Speed regulations for automobiles and motorcycles;
 - b. Keep on the right side of the street;
 - c. Care when turning at sharp corners;
 - d. Lights on vehicles at night.

Sixth Grade: Industrial Accidents.

Slogan—"And the end is that the boy shall grow up to enjoy his manhood and the girl her womanhood; that parents shall not be deprived of the delight of their children in youth or of their support when old age comes; and that cripples and hopeless wrecks, who might have been strong men and women, shall no longer be a byproduct of our community life."—(With acknowledgment to P. N. Junke.)

Review work of previous grades.

1. The right of the worker to be protected from accident and the right of society and the employer to his co-operation to prevent accidents.
2. Purpose of factory inspection by state and city.
3. Safeguards on machinery and dangerous places.
4. Foolishness of taking unnecessary risks.
5. Consideration for other workers.

Seventh Grade: Safe Living Conditions.

Slogan—"Build wisely to live safely."

Review work of previous grades.

1. Duties of the fire marshal.
2. The building codes of Rochester.

Eighth Grade: Economic Loss Through Accidents.

Slogan—"Compensation never compensates."

Review work of previous grades.

Discuss with the class the great economic loss involved when society loses the life production of some boy or girl who has been killed by accident. What it means to the family when the father or the wage earner is killed or incapacitated by accident. The economic value of an arm or an eye.

Discuss in a general way: Employers' liability laws, accident insurance, workingmen's compensation acts.

Some Important Points in Fuel Conservation*

Why We Must Still Save Fuel; Plan of Organization; Lessons Learned from Personal Experiences

By Robert Collett

Assistant Manager, Fuel Conservation Section, U. S. Railroad Administration

THE SHORTAGE OF FUEL was so acute last winter that anything resembling coal found a ready market at exorbitant prices, and it is estimated that the additional average of five per cent ash content in the coal in 1917 over 1916 represented a loss of something like \$1,20,000,000, aside from the collateral loss of poor service rendered by the use of this grade of fuel. The loss sustained by reason of heatless holidays has been variously estimated from one billion dollars up. A recent request from General Pershing called for six million tons of fuel to be shipped abroad. Our present shipbuilding program was estimated to require fourteen million tons of coal, merely to make and transport the steel. And for the eight million tons of vessels, it will require five tons of coal for each ton of shipping which leaves the ways. Each 15,000-ton ship that leaves our harbors for Europe consumes about 3,000 tons of coal or 12,000 barrels of fuel oil. Before the war, ships coaled abroad and made the round trip. Now the reverse is true. We can readily see, therefore, that the need for conservation, aside from cost is such as to challenge our best efforts. What then are we doing, and what can we do, to effect further economy?

By reason of the large corps of fuel inspectors under the Federal Fuel Administration, aided by the railroad fuel inspectors, who have also been given federal authority, the general quality of the fuel has been, and will continue to be, very much improved. The miners have responded wonderfully. Better car movement has also helped. The number of coal cars in service in ten years has increased only 20 per cent, while the coal production has increased nearly 70 per cent. In 1915, the fuel consumption on railroads was 122,000,000 tons, at a cost of \$240,000,000; for 1918, it is estimated it will be 175,000,000 tons, at a cost of \$650,000,000, an increase in tons of about 44 per cent, and in cost of 170 per cent. To bring it closer home, the fuel bill for the three roads entering Boston in 1917 for locomotives was nearly \$21,500,000; the fuel used for stationary and power plants will bring the cost close to \$25,000,000. If by concerted effort nine shovel fulls of coal could be made to do where ten shovel fulls now are used, it would mean an annual saving for these three roads alone of \$2,500,000. It is fair to assume that this much will be accomplished.

Organization

Investigation has shown that actual supervision of the use of fuel is often not in similar proportion to other items of operation. But the fuel expense on railroads is such as to justify the necessary organization. Different railroads have different methods, the chief consideration is to have the supervision complete and responsibility for every angle of the problem definitely established. It is our recommendation that one general man without other duties than fuel conservation, be charged with general supervision, reporting to the chief operating or chief mechanical officer; if to the latter, it should be understood by all departments that matters so requiring will be referred to the chief operating officer whose

support, it is needless to add, will be given all practicable suggestions. The particular reason for this is, that many features vitally affecting fuel performance can only be handled as a system matter. It is but natural that the local division officers and even the various departments will not be in a position to regulate all matters locally. The monthly fuel cost should be furnished at the earliest possible date after the close of each month to all divisional as well as general officers, and be made a subject of discussion at staff meetings; it is also a good plan for superintendents and other responsible division officers to make monthly report of reasons for fuel increases and decreases. The plan of having fuel conservation committees, as a number of roads now have, is a good one. The fuel costs furnish an excellent guide for establishing responsibility as well as showing the justification in some instances for increased supervision or facilities.

In the matter of the general man referred to; in addition to disseminating a great deal of valuable information gained through contact with all of the division master mechanics, superintendents and other officers, as well as employees, the division road supervision needs the counsel, advice and influence that his position can furnish.

The maintenance of equipment department carries the responsibility for the waste of fuel by reason of engines not being in good condition. It is responsible for excessive fuel used at terminals and is naturally striving to continually improve these conditions. The transportation department is responsible for the conditions causing fuel waste in that department and the maintenance of way department likewise.

Those charged with supervision of the locomotive crews when in service feel their share of responsibility for the proper methods of operation and a proper return from the money invested in fuel. To the greatest possible extent they should be given every opportunity to come into personal contact with the crews and the engines when in service.

Where practicable, each road foreman of engines or supervisor should have a certain number of crews and engines and be thoroughly familiar with the fuel costs in such service. We will assume one road foreman of engines with an assistant, and one traveling fireman—which is more supervision than is usually provided—has 50 engines in service at all times under his direction. At present costs these 50 engines are worth, if at all modern, we will say \$40,000 each, or a total of \$2,000,000. We will estimate they will burn 300 tons of coal each month at \$6 per ton, a fair average for New England; this gives a fuel cost of \$1,800 per engine per month, a total of \$90,000 per month, or \$1,080,000 per year. This supervision then is virtually responsible for the proper operation for every minute it is in actual service, of \$2,000,000 worth of machinery and the proper use, so far as the work of the crew is concerned, of \$1,080,000 worth of fuel annually. It is very natural, therefore, they should be anxious to make a good return for their stewardship.

*Abstract of a paper presented at the New England Railroad Club.

Personal Experiences on a Large Road

Several years ago the writer was assigned to the work of fuel economy on quite a large railroad, reporting directly to the general manager. My job, as the general manager outlined it at the time, was to find out what our locomotives were doing in the use of fuel in the various classes of service and what they ought to do. In this experience I early learned that the one thing that goes further than anything else in obtaining results, is the unqualified support of the officers—from the chief operating officer down—which should be manifested by a personal interest *in*, and familiarity *with*, what is going on in the work. The important factors which it was my duty to study and control, as outlined by the general manager, were as follows:

Waste of fuel by reason of engines being delayed on the road.
Waste of fuel by engines being kept under steam unnecessarily at terminals.
Improper handling of the engine.
Excessive use of fuel by firemen.
Engines not in good condition.
Fuel not up to contract specifications.
Shortage of coal reaching pockets.
Fuel used for other purposes and improperly charged to engine use.
Any other matters that may require attention.

A locomotive performance sheet based on pounds per 1,000 ton-miles in freight service and per passenger car mile in passenger service, was established. To find out what we were doing and what we ought to do meant just one thing: Getting right into the heart of things and finding out by actual observation. My equipment to start with was a pretty fair capacity for work, a couple of suits of overclothes, a tally counter, an electric torch and the knowledge that the job was up to me. I had to get results, not paper, but real results, and also I had to live on good terms with all departments, for obviously if anyone was going to be "fired" from the job, it wasn't going to be the superintendent of motive power or the general manager himself.

Locomotive Performance Sheet.—By the performance sheets we were enabled to make a very close study of fuel distribution, that is, the charges to individual engines and other miscellaneous purposes. A daily record was kept by charging the coal consumed on each trip, including that used at terminals, against the gross ton-miles in freight service and passenger car miles in passenger service for the trip. By calibrating the old style chutes and at the mechanical chutes where there were no coal measuring devices, delegating certain men to do the coaling—having them work close with the fuel foreman—we were able to account for all of the coal used without large adjustments at the close of the month and felt also that we got a fair distribution to the individual engines. I might add that we always used the fuel foreman's and not the engineer's estimate. At the same time, we found that no matter how closely we watched the distribution feature and although the law of averages worked out very satisfactory for a given class of service, we could not depend on the performance sheet alone to locate excessive consumption. The performance sheet does, however, show up a great many things, especially the effect of light tonnage, light mileage, etc., but there are so many factors that can influence the performance even on similar runs, that a very close personal knowledge of the conditions of all of the locomotives and also close contact with the crews, shop forces and dispatcher's office is necessary. My stereotyped questions in the dispatcher's office soon came to be, "Are all engines handling the required rating and how are they getting over the road?" In the roundhouse the question was, "Were any engines not steaming?"

Waste of Fuel by Reason of Engines Delayed on Road.—It is impossible to get a fuel performance record that will accurately record waste from this cause. Where practicable, delay reports should show time lost for each cause, instead of consolidating delays as sometimes happens, in order that each cause for delay can be properly followed. Here again

close contact with the crews will develop valuable information. These matters should be made important features at the staff meetings.

One road recently had a number of its most experienced conductors and engineers ride the freight trains for a time and had improper conditions corrected on the ground where possible. Without reducing tonnage, the average time of freight trains on the road was reduced two hours. Another case which came to my attention recently was that of a passenger train schedule which was badly divided and had been for years. The engineers were unable to make the schedule between certain points and engine failures were being charged. It was found that road foremen of engines or engineers were never consulted when new time cards were made. Another case I recently observed was that of three mail clerks unloading mail to one small boy. The engineer at the end of the trip told me that was not an uncommon delay and that it took nearly a ton of coal to make up the time, unnecessarily lost.

Fuel observations taken by counting the scoops of coal, showing the difference between favorable and unfavorable trips will disclose interesting information. If these matters are followed up closely from a fuel cost standpoint, and crews encouraged to call this to the attention of their officers, much will be accomplished.

Waste of Fuel by Engineers Kept Under Steam Unnecessarily at Terminals.—It had been the practice with us and it is not at all uncommon for the mechanical department to keep engines ready for service at all times. This method was reversed and the transportation department gave three hours' notice for the required engines. All of the time above three hours the engines were held under steam, was charged at a rate determined by tests for the various class of service and considered as excessive fuel used at the terminal. This is a matter for local handling, but requires very close watching. Firemen instructors should spend a certain portion of their time educating fire-tenders and there should be terminal fuel committees, consisting of the master mechanic, yard-master, and others. Proper division officials should be looked on as responsible for economical use of fuel at terminals, including stationary plants.

Improper Handling of Engines.—Engineers are quite naturally anxious to make a good performance. They realize the importance of the fuel bill and the better performance they can make the better trip they have. It sometimes happens, however, that even some of the more experienced men have not adopted the most economical methods. The statement has sometimes been made that "You can't teach an old dog new tricks." That is not my experience. Any man who can successfully hold down a job of running an engine over a period of years, I maintain not only *can*, but has the disposition to learn the most economical methods of operation. We will presume a man is not quite so skillful with the reverse lever and throttle or injector as some other men. Let the road foreman or supervisor go with him and say, "We want to see, or the boss wants to know, what is the best that can be done on this run in the way of fuel. I may make a few suggestions, but I will take the responsibility for making the time, etc." He may even handle the engine or fire for a part of the way. Let a note of commendation come back from the general manager or superintendent on the good performance and you will find that it will have the effect of encouraging any man to make a close study, as to how he can improve his methods. On some roads, however, the plan has been to attempt to get this through the performance sheet and writing letters to the enginemen, calling attention to apparently poor performance. Sometimes these letters go to the wrong man. Another thing, the enginemen see things neglected which to them seem of great importance, and which causes them to believe that fuel economy is not really so much

the desire of the management, or they would have been corrected. It is desirable that the crews be advised as to what steps are taken to remedy defective conditions which come under their observation and to which they call attention.

Excessive Use of Fuel by Firemen.—Not unlike many other roads, our plan was to give new firemen a letter to be signed by three different engineers, when in their opinion he was qualified. We found they did not always ride with crews who were the best instructors. We then arranged to select the crews they should ride with and whom we knew would train them properly. We also established the first, second and third year progressive examinations and made a rule that as nearly as practicable, the road foreman of engines would approve the application of new firemen before they entered the service for pay. In the past eighteen months scarcely any rule would apply in the employment of new men, but speaking in general it is possible to attract good men for the position of locomotive firemen.

I believe it worth while to maintain a competent force of traveling firemen or firemen instructors. There are always firemen on every division of the railroad who are very skillful, and the other firemen should be taught their methods. Everything depends on the new firemen getting a proper start and this has not been given enough consideration on the average railroad. The treatment accorded by the engineer, especially with new men, is important.

Engines Not in Good Condition.—Aside from the support of general officers and thorough co-operation between all departments, the condition of the locomotive is the greatest factor in the economical use of fuel. We will pass the matter of design and well known appliances with the statement that appliances of whatever nature, tend to make the engine more complicated and require that they be properly maintained and operated. Certain devices operating under 100 per cent condition guarantee a certain result, but it is sometimes found that practically all of the benefits of the investment are lost by reason of lack of attention to detail, in its care.

Definite front-end and nozzle arrangements should be established and maintained at standards proven to be the most economical for the grades of fuel to be used. Air openings through ash pans should not be less than 15 per cent of the grate area, and preferably more than this. Tight steam pipes, front ends, tight valves and cylinder packing, grates properly maintained and first class steam distribution are the more important items. Engines cannot be in too good condition. If properly encouraged and especially if they know just what it means in dollars and cents in fuel costs, engineers will assist by their reports in keeping engines in good condition.

It is a good plan for the road supervision to ride engines for the first trip out of shop or during the breaking-in period, giving the shop superintendent or master mechanic a detailed report. These reports can be gone over at the staff meetings of the shop superintendent or the master mechanic with their foremen. We should also commend them for their good work. There should be the closest co-operation between the road supervision and the terminals and shops. It has been often stated that if all of the unnecessary work occasioned by improper reports could be avoided, all of the necessary work could be done.

Fuel Not Up to Contract Specification.—The people who use the coal should know all about where it comes from, and when it meets specifications, and work very close with fuel purchasing department. Where it cannot be inspected at the mines, it should be inspected at junction and unloading points and held for inspection if it is not up to the proper grade. The railroad inspectors have now been given federal authority. In cases where, notwithstanding inspectors' efforts, coal of poor quality is persistently shipped, fuel inspectors' reports are verified and such mines or parts of mines are being prohibited by the Fuel Administration from making

further shipments. Under their regulations concerning clean coal, dated May 27, 1918, and Order No. 2,889 of August 26, and the Railroad Administration is withdrawing the car supply from such mines. In addition to this, the Conservation Section has recently been inspecting mines concerning which complaints have been made. Where it is found the product is unfit for locomotive use, we have asked the Central Advisory Purchasing Committee of the Railroad Administration to instruct the railroads to cease purchasing or accepting coal from these mines.

Shortage of Coal Reaching Pockets.—This applies particularly to the weights, to coal lost by the overloading of cars, coal wasted on account of the condition of the equipment, coal left in cars or pilfered. It is essential, if we are soliciting full co-operation in the use of fuel, that these matters should also receive their full share of attention.

Fuel Used for Other Purposes and Improperly Charged to Engine Use.—It sometimes happens that the locomotive fuel supply is drawn on for many other causes, such as roundhouse stoves, sandhouses, and a great many other uses, and proper credit is not given. This is a matter of charging coal to what it is used for, and if necessary to take it from the locomotive supply, to give it the proper credit. Unless this is followed the engineers are apt to feel that they are not getting credit for what they are actually doing.

One who devotes the greater part of his time to the use of fuel on railroads, will find that it opens a wide field of opportunity and interest, not the least of which is the study of human nature, and it will be found that valuable suggestions will come from employees in the most humble occupations, and from every branch of the service.

S. M. Felton Resigns as Director General of Military Railways

S. M. FELTON, who as director general of military railways has had charge of the organization and despatch abroad of all railway forces and the purchase of all railway material for the American Expeditionary Forces, has resigned, effective on December 31, and after closing up the affairs of his office in Washington will return to his railroad work at Chicago as president of the Chicago Great Western. Mr. Felton has been connected with the railway activities of the war department in his present position and as consulting engineer and railway adviser to General Black, chief of engineers, since June 24, 1916. On that date he was selected, on the recommendation of a committee representing five national engineering societies, to take charge of the work of getting together men and materials for possible railway operations in connection with the expedition into Mexico, including the problem of taking over and operating the Mexican railroads, if necessary.

After the entrance of the United States into the European war Mr. Felton sent a railway commission headed by William Barclay Parsons to investigate transportation conditions abroad while he took charge of the organization of the first nine railway regiments, the recruiting of which was begun within a month after the declaration of war. When it became apparent that a separate organization must be created within the engineering department to handle the transportation problem, the office of director general of military railways was established in July, 1917, and Mr. Felton was appointed to the position by the Secretary of War. This involved not only the organizing, equipping and military training of railway troops for the construction, maintenance and operation of standard and narrow-gage roads necessary for the supply of our armies in France, but also the purchasing, inspection and shipment of the immense quantities of railway materials and

equipment, rails, ties, locomotives, cars, shop tools, cranes, tugs and barges, etc., necessary for the development of adequate port facilities, the construction of new lines and their successful operation. The immediate responsibility for the work in France was intrusted to Brig. Gen. W. W. Atterbury, formerly vice-president of the Pennsylvania Railroad, who was appointed director general of transportation.

Mr. Felton's organization in July, 1917, consisted of himself, two engineer officers, Major M. C. Tyler and Major F. A. Molitor (now colonels) and two stenographers, located in three small rooms. It has expanded until at its peak this summer it comprised 1,304 officers and men, in addition to 2,775 in the engineer depots connected with the office. Many of these officers and men were later sent to France. The office has purchased materials and supplies amounting to \$700,000,000, including about \$400,000,000 for American-built rolling stock, and has organized 75,000 railway troops, of which 63,344 men and 1,810 officers had been sent overseas, while about 12,000 were ready to go when the armistice was signed.

A general description of the work of the department as given in the annual report of the Secretary of War was published in last week's issue. Regarding Mr. Felton's work, Secretary Baker said: "His intimate knowledge of railroad problems, coupled with a personal trip of inspection over all our lines of communication in France, have rendered his advice particularly valuable, and have greatly facilitated the progress of the war department in these particulars."

Orders of Regional Directors

TRANSPORTATION FOR EXPRESS COMPANY EMPLOYEES.—In order 132 the Southwestern regional director announces that existing regulations with respect to the furnishing of free transportation to employees of the American Railway Express Company have been modified by the director-general:

(a) During the first year of their employment, employees will be granted half rate transportation for themselves and dependent members of their families only in case of extreme necessity and between points where the fare is in excess of \$1.

(b) During the second year of employment passes for one round trip may be supplied to employees and each dependent member of their families between points not over 500 miles distant.

(c) During the third and subsequent years of service passes for one round trip may be supplied to employees and to each dependent member of their families between points 1,000 miles distant.

(d) Departures from the above rules will be authorized in emergency cases, such as sickness or death, and will be exercised according to the judgment of the vice-presidents of the express company.

Joint train, baggage men and express messengers who are carried on the express company's payroll and a portion of whose salaries is billed against the railroad will be treated as railroad employees. The same rule will apply to those who are carried on the railroad payroll and a portion of whose salaries is billed against the express company.

Telegrams from Troop Train Commanders to Red Cross Representatives.—The Southwestern regional director announces in Order 133 that the Canteen Service of the Red Cross is authorized to use railroad wires in sending telegrams from troop train commanders in connection with calls for the relief of sick men on board and necessary supplies. Accredited representatives of the Canteen Service will establish such contact with railroad telegraph offices where canteens are established as will enable them to take delivery at the telegraph office of the railroad at such a point.

Development of Coal Mines.—In Order 134 the Southwestern regional director states that the Fuel Administration has relinquished control over the opening of new coal mines and consequently the question of constructing tracks and other necessary railroad facilities sought in connection with the development of new mines, will be handled in the first

instance by the federal manager; if he recommends the project he will so report to the regional director. If the latter passes favorably upon the project he will so report to the director of the Division of Operation who will transmit the papers involved to the director of the Division of Capital Expenditures with his recommendation.

Maintenance of Wires During Winter.—Order 138 of the Southwestern regional director calls attention to a number of precautions which should be observed during the winter to insure the prompt repair of telegraph and telephone wires after a storm. It is similar to an order of the Eastern regional director, see *Railway Age*, December 13, page 1078.

Reports on Loading of Uncompressed Cotton.—Authority having been granted permitting the movement of uncompressed cotton, linters, hull fibre and hull shavings to ports for coastwise movement, conditional upon the loading of cars to their visible capacity, the Southwestern regional director in Order 136 asks that reports be prepared of any cases of light loading. Such reports should be made by the originating road to the Car Service Section direct, showing the car initial and number, the name of the shipper, consignee and destination, the number of bales and how many additional bales could have been loaded into the car. Copies of these reports should be sent to the office of the regional director. Export rates through the Pacific ports apply only on compressed cotton; consequently no uncompressed cotton can be forwarded to Pacific coast terminals for export, as it will be refused by steamship lines on arrival.

Pensions and Similar Benefits.—In Supplement 1 to Order 102, the Southwestern regional director announces that Order 102 protecting the pension rights of employees, also applies to accident, sick, death, superannuation and savings benefits which were maintained by the corporations, with or without contributions from the employees, at the time of the beginning of federal control. The Eastern regional director has issued a similar order, File 3000-445.

Assessments for Expenses Illinois-Indiana Coal Traffic Bureau.—In Supplement 2 to Circular 136, the Southwestern regional director announces that carriers are authorized to make payments for assessments to cover the current expenses (excepting for statistical work) of the Illinois-Indiana Coal Traffic Bureau. These payments are to be charged to operation. Expenditures for statistical work will be charged by the bureau to the United States Fuel Administration and will not be assumed by the Railroad Administration.

Power Reverse Gear.—The Eastern regional director, file 500-69A328, asks what power reverse gear the roads have used; to what extent they have been used; for how long, and what type is preferred.

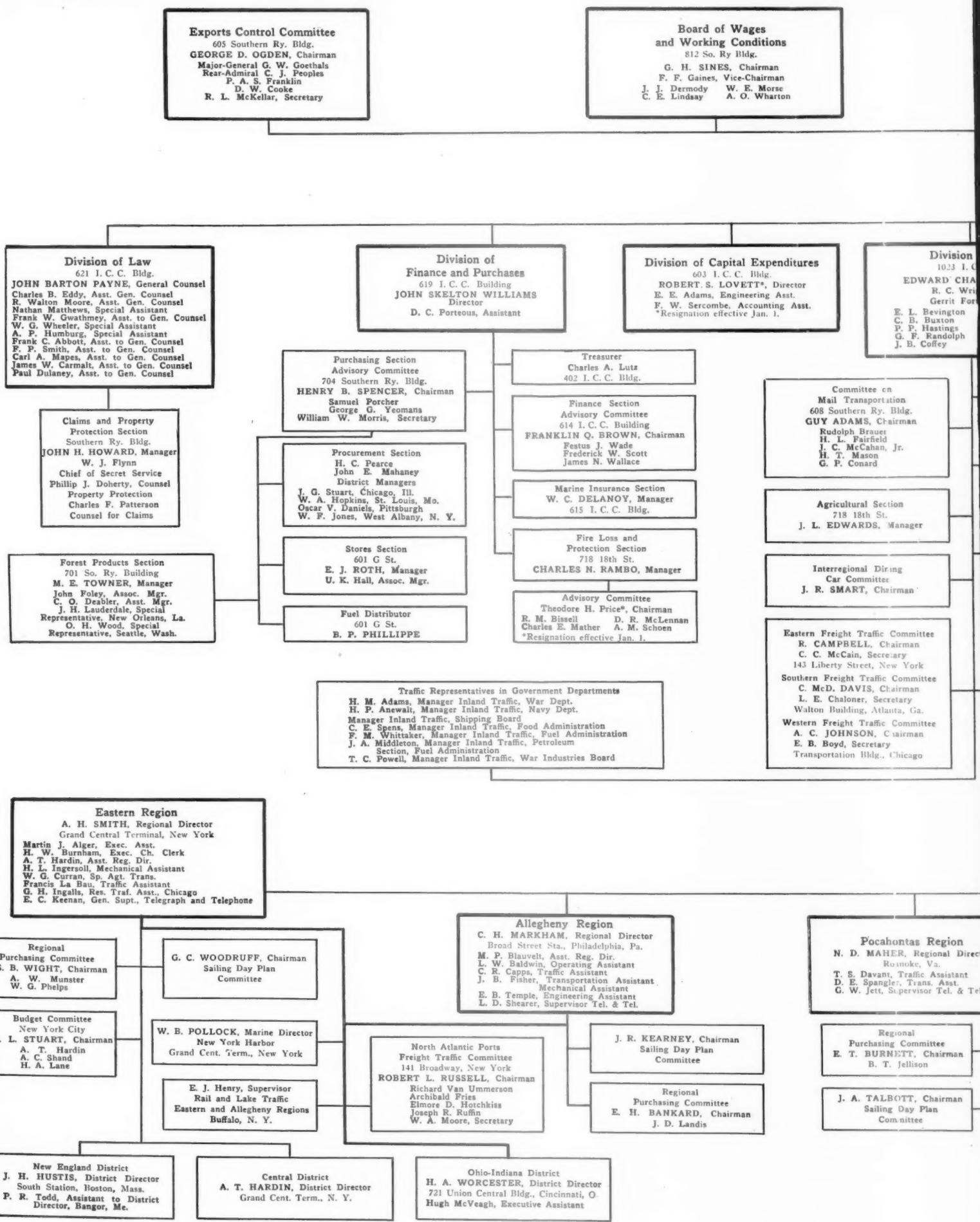
Shop Hours.—The eastern regional director, file 1200-2-25A329, gives the following interpretation from the director general: "The purpose of this order was to reduce the hours worked in locomotive shops and roundhouses and in car shops and repair yards to a basis of eight hours per day on December 9. At roundhouses and other places where the work is continuous 24 hours a day three eight-hour shifts should be established. In shops where a single eight-hour shift will not properly maintain the equipment a second shift should be organized as soon as men can be obtained, pending which the work should be taken care of by necessary overtime in accordance with agreements with the employees."

Telegraph Franks 1919.—The Eastern regional director, file 2100-33A316, states that for the year 1919 the individual railroads should be governed by their contractual obligations and past practice in furnishing transportation direct to Western Union officials or employees. This will also apply to Postal Telegraph Company, other telegraph or telephone companies, and to other concerns with whom contracts provide furnishing a certain amount of transportation, such as the

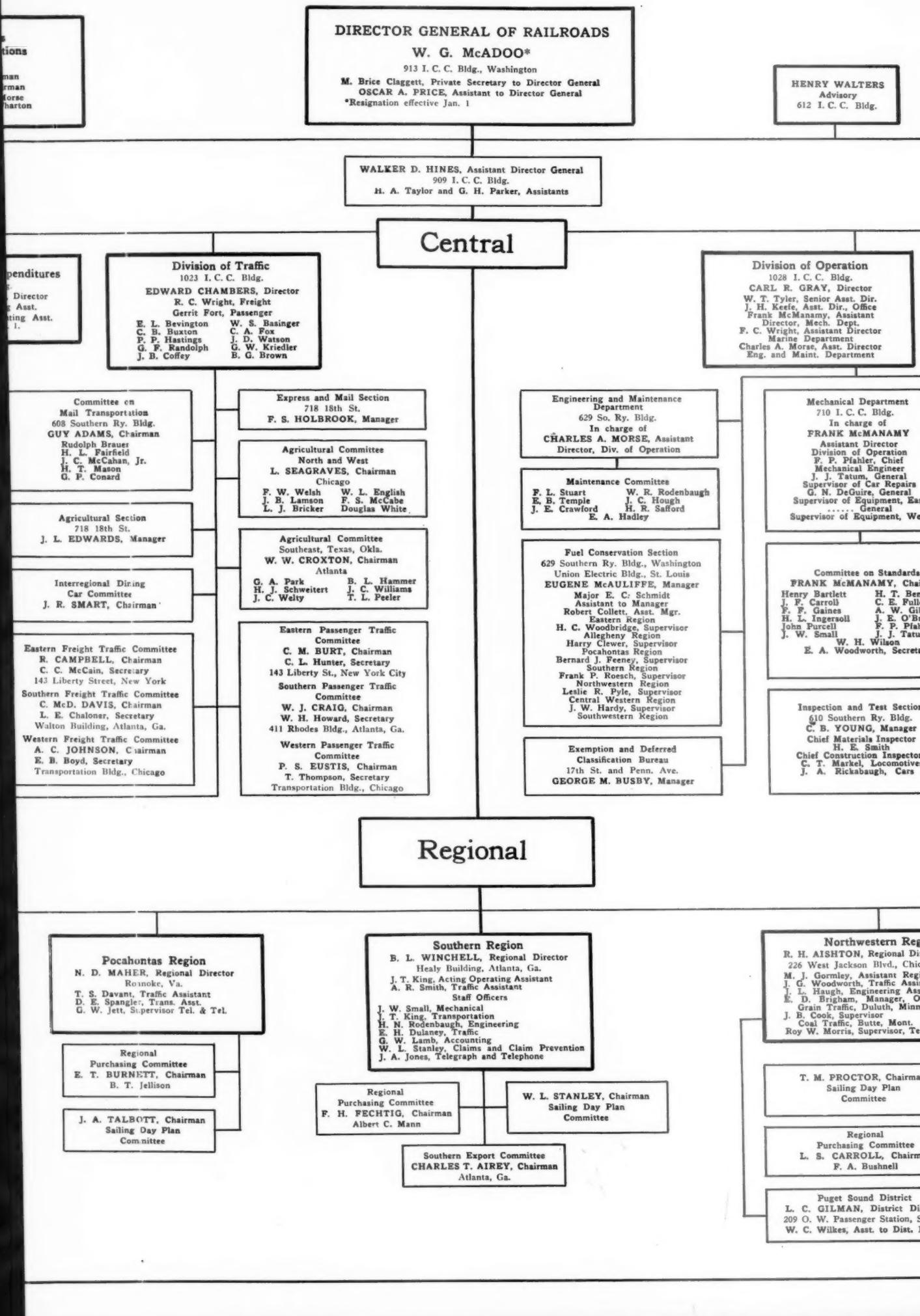
Supplement No. 1 to the Railway Age of December 20.

Supplement No. 2 is a list of the officers
of the Railroads under Federal control

The Organization



The Organization of the United States Railroad Adminis



Administration

Railway Age

WALTERS
Vivory
C. C. Bldg.

THEODORE H. PRICE*, Actuary
1010 I. C. C. Bldg.
Ballard Dunn, Assistant Actuary
Bureau of Suggestions and Complaints
The above and
T. F. Murphy
J. P. Jarrell
E. H. Lamb
Frank F. George

*Resignation effective Jan. 1

Committee on
Health and Medical Relief
17th St. and Pa. Ave.
DR. D. Z. DUNOTT, Chairman
Dr. G. W. Cale, Jr.
Dr. Victor G. Heiser
Dr. T. R. Crowder
Dr. H. M. Bracken

Operation
Bldg.
Director
Asst. Dir.
Dir. Office
Assistant
Dept.
Ant. Director
Asst. Director
Department

anical Department
I. C. C. Bldg.
In charge of
NK McMANAMY
ssistant Director
of Operation
P. Pfahl, Chief
anical Engineer
l. Tatum, General
visor of Car Repairs
DeGuire, General
or of Equipment, East
General
or of Equipment, West

mmittee on Standards
McMANAMY, Chairman
H. T. Bentley
C. E. Fuller
nes
A. W. Gibbs
ersoll
J. E. O'Brien
F. P. Pfahl
J. J. Tatum
W. H. Wilson
Woodworth, Secretary

tion and Test Section
Southern Ry. Bldg.
YOUNG, Manager
Materials Inspector
H. E. Smith
Construction Inspectors
Markel, Locomotives
Rickabaugh, Cars

Northwestern Region
SHTON, Regional Director
Jackson Blvd., Chicago
rmley, Assistant Regional Director
odworth, Traffic Assistant
ugh, Engineering Assistant
righam, Superior, Ore., Coal and
k, Duluth, Minn.
Traffic, Butte, Mont.
Morris, Supervisor, Tel. & Tel.

PROCTOR, Chairman
Sailing Day Plan
Committee

Regional
urchasing Committee
CARROLL, Chairman
F. A. Bushnell

Sound District
ILMAN, District Director
Passenger Station, Seattle
ilkes, Asst. to Dist. Dir.

**Division of Inland and
Coastwise Waterways**
601 G St.
G. A. TOMLINSON, Director
H. S. Noble, Federal Manager
New York and New Jersey Canals
M. J. Sanders, Federal Manager
Mississippi and Warrior Waterways

**Division of Public Service
and Accounting**
1114 I. C. C. Building
CHARLES A. PROUTY, Director
George T. Atkins, Traffic Assistant
C. B. Heinemann, Traffic Assistant

Division of Labor
606-607 I. C. C. Building
W. S. CARTER, Director
J. A. Franklin, Assistant
G. W. Hanger, Assistant
Representatives
William Blackman
John A. Moffit
Anthony M. Banks
H. H. Reed, Special Asst.

Car Service Section
718 18th St.
W. C. KENDALL, Manager
E. H. DeGroot, Jr.
A. G. Guthain
C. B. Phelps
G. F. Richardson
J. A. Somerville
W. J. McGarry
W. L. Barnes, Chicago

Operating Statistics Section
603 Southern Ry. Bldg.
W. J. CUNNINGHAM, Manager
V. P. Turnburke, Assistant Manager
J. J. Ekin H. W. Mackenzie
J. G. Drew W. C. Wishart
G. R. Martin

Safety Section
712 Southern Ry. Bldg.
A. F. Duffy, Acting Manager
Regional Supervisors
R. S. Jarnigan, Eastern Roads
Harry J. Bell, Western Roads
C. M. Anderson, Southern Roads
Charles W. Gregg, Washington

Troop Movement Section
429 Homer Building
GEORGE HODGES, Manager

Telegraph Section
Sou. Ry. Bldg.
MARTIN H. CLAPP, Manager

Accounting Committee
A. H. PLANT, Chairman
C. B. Seger A. D. McDonald
R. A. White Frank Nay
J. G. Drew L. G. Scott
W. E. Bailey

Auditing Section
718 18th St.
J. W. Roberts, Auditor
Fred Pettijohn, Chief Accountant

Short Line Section
I. C. C. Building
EDWARD C. NILES, Manager
Robert Rantoul, Asst. Mgr.

Board of Adjustment No. 1
733 So. Ry. Building
CHARLES P. NEILL, Chairman
L. E. Sheppard, Vice-Chairman
F. A. Burgess
William A. Clark
W. N. Doak
J. W. Higgins
Albert Phillips
John G. Walber
E. T. Whiter

Board of Adjustment No. 2
702 So. Ry. Building
E. F. POTTER, Chairman
George W. Pring, Vice-Chairman
A. C. Adams W. S. Murrian
G. M. Burgmazer W. H. Penith
H. J. Carr E. A. Swetley
Otto Hoard Robt. J. Turnbull
F. H. Knight C. C. Vandornes

Board of Adjustment No. 3
H. A. KENNEDY, Chairman
T. H. Garrey, Vice-Chairman
S. N. Harrison George E. Kipp
F. Hartenstein W. A. Titus
E. A. Gould Richard P. Dee

Women's Service Section
17th St. and Pa. Ave.
MISS PAULINE GOLDMARK, Manager
Field Agents
Miss Florence E. Clark
Miss Ruth R. Hall
Miss Helen Rose
Miss Rose Yates

Central Western Region
HALE HOLDEN, Regional Director
547 Jackson Boulevard, Chicago
B. B. Greer, Assistant Regional Director
F. E. Clarity, Transportation Assistant
H. R. Hough, Traffic Assistant
H. R. Safford, Engineering Assistant
T. E. Paradise, Mechanical Assistant
Richard B. Thornton, Inspector, Tel & Tel.
B. J. Rowe, Supervisor Coal Traffic, Chicago
H. K. Mack, Supervisor Coal Traffic, Herrin, Ill.
Geo. Williams, Supervisor Coal Traffic, Denver
J. D. Kenworthy, Supervisor Coal Traffic
Salt Lake City, Utah

GEORGE MORTON, Chairman
Sailing Day Plan
Committee

Regional
urchasing Committee
L. N. HOPKINS, Chairman
M. J. Collins
E. A. Clifford, Assistant

WILLIAM SPROULE, District Director
San Francisco, Cal.

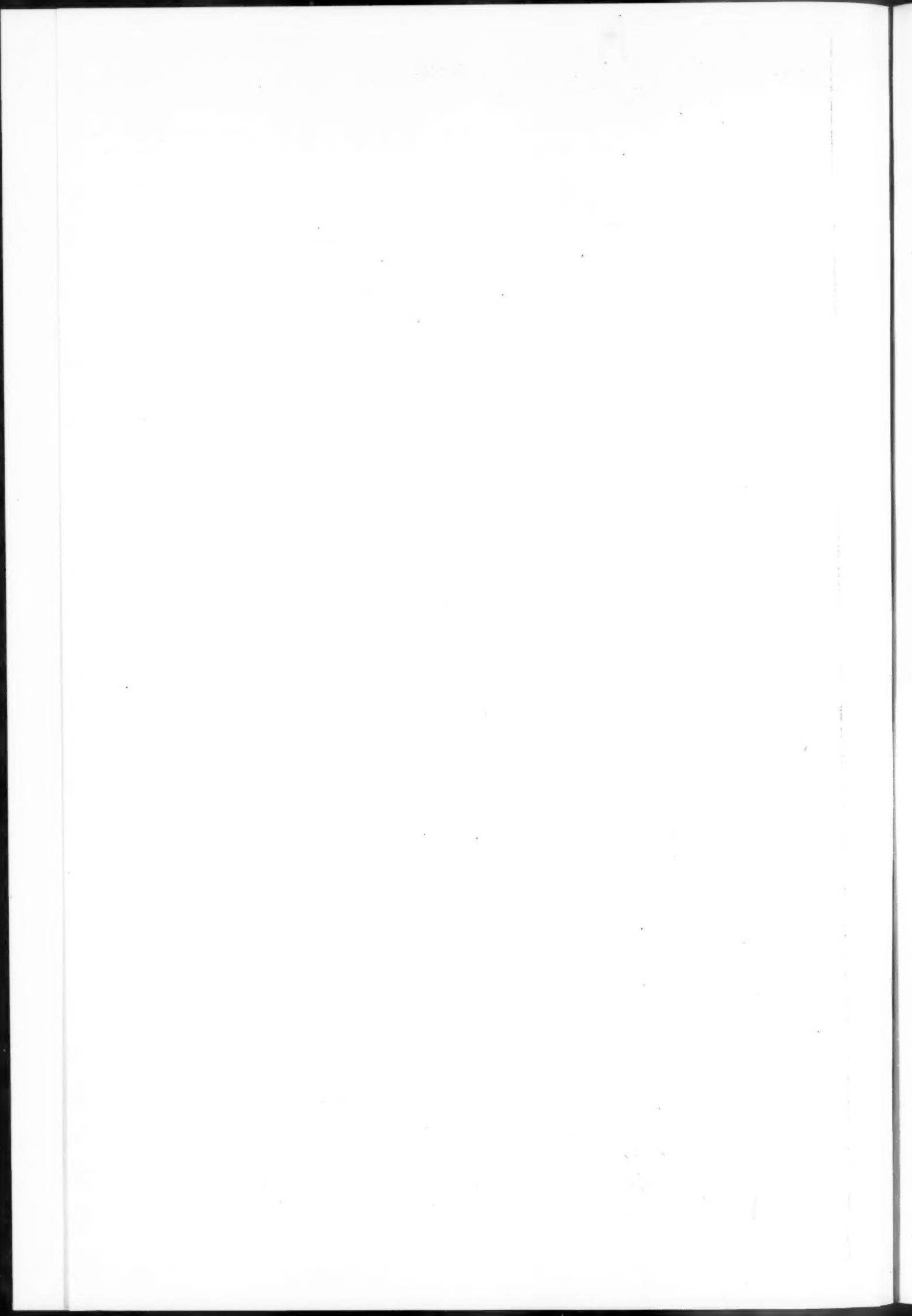
Southwestern Region
B. F. BUSH, Regional Director
Ry. Exchange Bldg., St. Louis, Mo.
W. G. Vollmer, Assistant Regional Director
E. A. Hadley, Engineering Assistant
W. B. Biddle, Traffic Assistant
G. W. Brice, Supervisor of Transportation
C. H. Wood, Supervisor of Car Service
W. Rogers, Tel. and Tel. Eng.
H. E. Mack, Gen. Supervisor Mail Traffic
H. A. Weaver, Supervisor Coal Traffic, Kansas City
H. K. Mack, Supervisor Coal Traffic, Herrin, Ill.
B. L. Swearingen, Supervisor Oil Traffic, Kansas City
W. A. Hopkins, Supervisor of Stores

Regional
urchasing Committee
C. A. HOW, Chairman
J. L. Cowan

F. M. LUCORE, Chairman
Sailing Day Plan
Committee

Southern Export Committee
CHARLES T. AIREY, Chairman
Atlanta, Ga.
J. W. Daley, Galveston
W. M. Rhett, New Orleans

Texas District
F. G. PETTIBONE, District Director
M. K. & T. Ry. Office Bldg.,
Dallas, Tex.



Galena Oil Company, Westinghouse Air Brake Co., etc.
Industry Side Tracks.—In connection with Supplement No. 1 to General Order No. 15, the Eastern regional director, file 401-14A326, states that it will be considered reasonable to enter into a contract under the original terms of General Order No. 15 whereby the railroad will pay at the outset for the cost of that part of the track between the switch point and the clearance point when the federal manager believes that for the first two years after beginning operation of the track the average monthly gross revenue accruing to all railroads under federal control on business to and from the industry will be equal to 15 per cent of the expense assumed by the director general for the construction. This is not stated as an invariable rule to require the making of such a contract under the circumstances stated, or to prohibit the making of such a contract in the absence of expectation of such an amount of revenue. It is, however, believed to be a fair working rule for application except in cases where special circumstances

indicate that some other reasonable rule should be applied. Where the federal manager does not apply the working rule here suggested, he should report his action, either favorable or unfavorable, and his reasons therefor, so that suggestions for the guidance of the federal manager may be made to cover future cases. While Supplement No. 1 expresses no reservation, it is to be understood that in cases where a shipper claims that under federal or state law he is entitled to a track on other terms, his claim shall be considered and transmitted through this office to the director, Division of Public Service and Accounting, for his consideration.

Chartered Passenger Cars.—The eastern regional director, file 1600-11-22A325, states that it has been decided that the movement of private cars in all parts of the country on the basis of 30 fares as a minimum payment will be permitted. This will apply to coaches as well as sleeping cars and the necessary tariffs to cover this situation in the territory east of Buffalo and Pittsburgh will be issued immediately.

Report of Chief Inspector of Locomotive Boilers

General Condition of Locomotives Improved; Inspectors Helpful in Relieving Congestion

THE SEVENTH ANNUAL REPORT of the chief inspector of locomotive boilers for the fiscal year ended June 30, 1918, covers the work done under the locomotive-boiler inspection act as amended to apply to the entire locomotive and tender and all their parts and appurtenances. The data includes all of the defects found on any part or appurtenance of locomotives and tenders; also all of the casualties resulting from failure thereof.

The tables show, in concrete form, the number of locomotives inspected, the number and percentage found defective, and the number ordered out of service on account of not meeting the requirements of the law. They also show the total number of accidents due to failure from any cause of locomotives or tenders and all parts and appurtenances thereof and the number killed and injured thereby.

LOCOMOTIVES INSPECTED, NUMBER FOUND DEFECTIVE, AND NUMBER ORDERED OUT OF SERVICE

	1918	1917	1916
Number of locomotives inspected.....	41,611	47,542	52,650
Number found defective.....	22,196	25,909	24,685
Percentage found defective.....	53	54.5	47
Number ordered out of service.....	2,125	3,294	1,943

	1918	1917
Number of accidents.....	641	616
Increase over previous year.....per cent..	4.1	...
Number killed	46	62
Decrease from previous year.....per cent..	25.8	
Number injured	756	721
Increase over previous year.....per cent..	4.8	...

The table in the next column shows the total number of persons killed and injured by failure of locomotives or tenders, or any part of appurtenance thereof, during the three years ended June 30, 1916-1918, classified according to occupations.

A summary of the accidents and casualties resulting therefrom during the year shows an increase of 4.1 per cent in the number of accidents, with a decrease of 25.8 per cent in the number killed, and an increase of 4.8 per cent in the number injured.

The decrease in the number of locomotives inspected during the year is due to the fact that a substantial percentage of the inspectors of locomotives were engaged in special work during most of the year. During the months of November and December, 1917, almost all of the inspectors were en-

gaged, at the request of the Interstate Commerce Commission, in checking the congestion at terminals in an effort to see that locomotives were promptly furnished so that the coal movement might be facilitated and the fuel shortage relieved; and during the months of January, February, and March, 1918, were performing similar work at the request of the director general of railroads, and this work contributed materially toward breaking the blockade and expediting the

	1918		1917		1916	
	In-Killed	In-jured	In-Killed	In-jured	In-Killed	In-jured
Members of train crews:						
Engineers	11	245	16	230	11	205
Firemen	19	306	21	304	12	225
Brakemen	6	62	13	60	9	74
Conductors	21	3	14	1	6	6
Switchmen	2	8	1	8	..	6
Roundhouse and shop employees:						
Boiler makers	1	11	..	11	1	11
Machinists	11	..	8	1	1	11
Foremen	1	4	..	1	1	3
Inspectors	4	4	..	3	..	3
Watchmen .....	..	3	..	5	..	8
Boiler washers	4	..	7	..	10	10
Hostlers	8	..	6	..	6	6
Other roundhouse and shop employees ..	2	19	2	19	1	21
Other employees	26	5	22	..	..	7
Non-employees	24	1	23	1	1	3
Total	46	756	62	721	38	599

movement of coal and other freight. It is also due in part to the fact that a number of inspectors of locomotives were permanently transferred to the service of the director general of railroads because of their general knowledge of equipment and their special training in the work of conducting investigations.

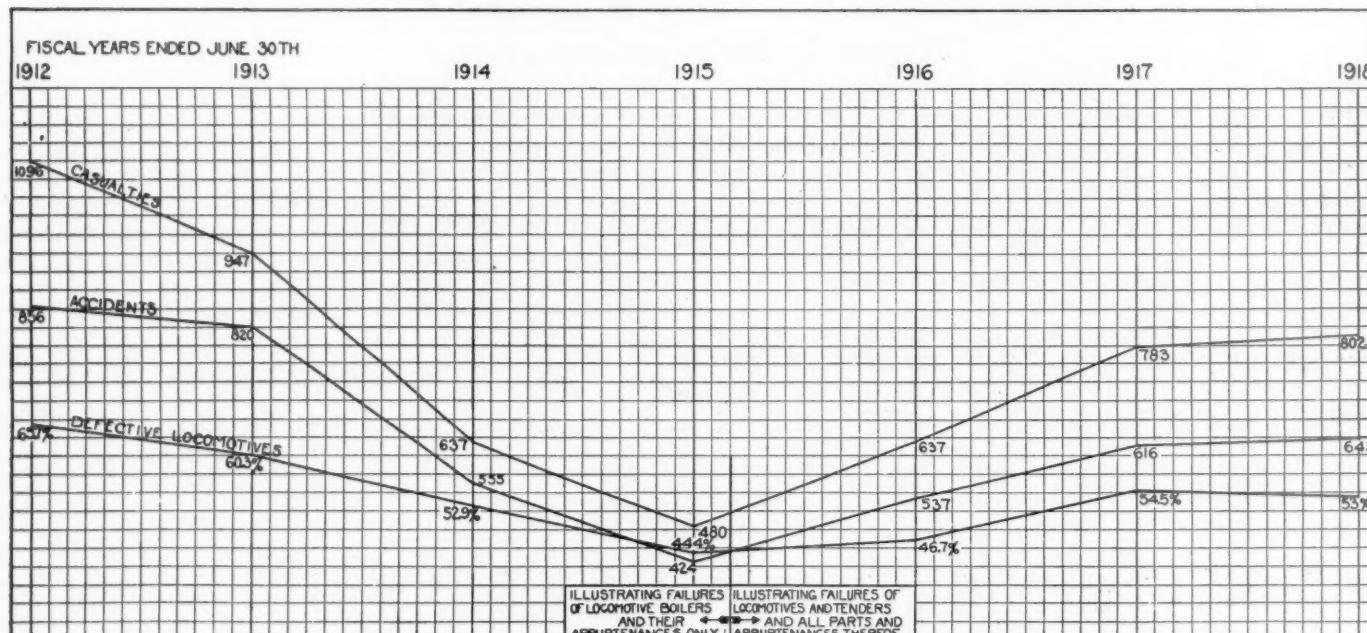
The period covered by this report represents what is admitted to have been the most difficult in the history of American railroads to properly maintain locomotives. This is primarily due to the war conditions which made it necessary to use to their maximum capacity all locomotives that were serviceable, and to return to service many locomotives that had been out of service for years awaiting disposition and which, in some cases, were put in service without having been thoroughly repaired. Proper maintenance of locomotives was also made difficult by the large number of mechanics that entered military service.

The excessive demands for power resulted in the use of many locomotives that were in violation of federal laws, no doubt, with the thought that the movement of traffic was being expedited thereby, but the results of this practice were clearly demonstrated during the past winter.

These conditions rendered the work of the inspectors exceedingly difficult, and considerable pressure from various sources was brought to bear on them to prevent the enforcement of the law where locomotives were sorely needed. The shortage of power made it necessary in every case for inspectors to exercise the utmost good judgment and discretion in their work in order to avoid any possibility of causing additional congestion which an inflexible enforcement of the law might have brought about. The fact that the enforcement of the locomotive inspection laws during this trying period did not unnecessarily hamper the movement of traffic, but on the contrary the work of the inspectors, in hundreds of instances, facilitated the operation of locomotives and the movement of trains, is evidence not only of the discretion and judgment of inspectors in their enforcement of the law, but also of the wisdom and farsightedness of its framers, because it is generally admitted that the law and the work of the inspection bureau was of substantial benefit during the past winter, and when we consider, in addition to this, the fact that the

7, 1918, by the withdrawal by the complainant and at the complainant's cost, of bill in equity No. 226, United States District Court, District of Indiana, *New York Central Railroad Co. v. United States*, in which it was sought to restrain the Interstate Commerce Commission from enforcing its order. This withdrawal was made after arguments on the bill had been heard by the court and the position of the complainants declared to be unsound. This, it is believed, finally disposes of the question at issue concerning the authority of the Interstate Commerce Commission to establish a standard test for locomotive headlights, and the Locomotive Inspection Bureau to enforce such orders.

In the sixth annual report recommendations were made that locomotives should be equipped with automatic fire doors and that a steam connection to air-operated power reverse gear should be applied. It is not considered necessary to repeat these recommendations at this time for the reason that both recommendations have been adopted by the United States Railroad Administration, and all standard United States locomotives are being so equipped, and it is expected that the recommendation for automatic fire doors will be generally followed on locomotives passing through the shop for general repairs, so far as material and labor are available. The recommendation that a steam connection to air-operated power



Relation of Defective Locomotives to Accidents and Casualties Resulting from Locomotive Failures

general condition of locomotives has improved during the year, due, in part, to the work of the inspectors, the results become particularly creditable.

During the year 353 applications were filed for extension of time for removal of flues under the provisions of Rule 10. Investigation showed 18 of these locomotives in such condition that no extension could properly be granted. Forty-two were in such condition that the full extension requested could not be granted, but an extension for a shorter period was allowed. Thirteen extensions were granted after defects disclosed by our inspectors had been repaired. Sixty-two applications were withdrawn for various reasons, and the remaining 218 were granted for the full period asked for. It will be noted that the number of applications for extension of time for removal of flues decreased about 50 per cent. This is largely due to the modification of the rule which was recommended to the Commission and approved by it, and indicates that, under the circumstances, the modification was a proper one.

As provided in Rule 54, 3,124 specification cards and 8,080 alteration reports were filed.

The locomotive headlight case, which has been pending for approximately three years, was finally disposed of June

reverse gears has been adopted by the United States Railroad Administration for old as well as new locomotives.

No formal appeal from the decision of any inspector was filed during the year.

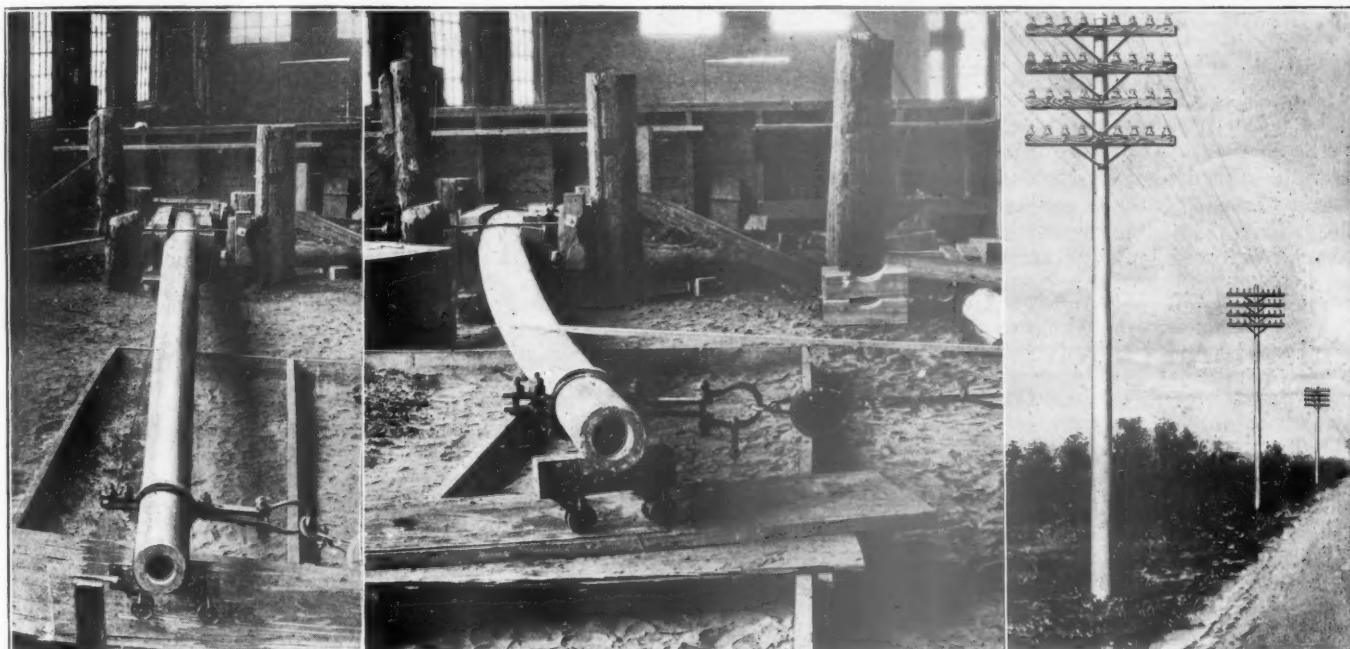
Investigation of the Brooklyn wreck of November 1, when 97 passengers were killed, has resulted in the issuance, by the mayor of New York, of warrants charging manslaughter against five officers of the Brooklyn Rapid Transit Company, namely: Timothy S. Williams, president; John J. Dempsey, vice-president and chief operating officer; John H. Hallock, president of the New York Consolidated Railroad, which appears to be the operating company having charge of the line on which the derailment occurred; W. S. Menden, chief engineer, and Thomas F. Blewitt, superintendent. Each of the five defendants was held in \$10,000 bail; and Edward Luciano, who was motorman in charge of the train, had been previously held in \$5,000 bail. Mayor John F. Hylan, who issued the warrants in his capacity as magistrate, was judge of a court prior to his election as mayor; and before that had been a locomotive engineman on the Brooklyn Elevated Lines.

Hollow Concrete Poles Made by New Methods

Important Savings in Weight Over Solid Construction Are
Effectuated by a Centrifugal Process

THE RECENT DEVELOPMENT on a commercial basis of hollow concrete poles is of special importance since it came at a time when the use of steel for pole lines has been largely out of the question and the use of wood has been hampered by the great demand for that material for other purposes. Although the superiority of concrete as compared to timber from the standpoint of service life has long been recognized, its substitution in the form of poles such as are used for supporting lines of electric wire has been much slower than the merits of this material have warranted. The main obstacle to the introduction of concrete has been its weight, since concrete weighs fully three times as much as timber. The cost of shipping and of the labor for erecting solid concrete poles

The poles are made by a centrifugal process, an idea by no means new, but which has only recently been developed to a degree of perfection that insures a uniformly high grade product while giving production economies that make the poles commercially attractive. The first step is to build the cage of reinforcement similar to that used in a reinforced concrete pile. The longitudinal reinforcing rods are assembled and tied securely at the intersections. The completed cage is placed inside the molds, the two halves of which are securely bolted together and the required amount of wet-mixed concrete is poured into the mold. This mold is inserted in a centrifugal machine by means of which it is rotated on its longitudinal axis, the velocity being increased gradually until a high rate of rotation is



Test of a Pole. Initial and Stressed Positions. A Concrete Pole Line

has made them very expensive, although the highly superior ornamental effects possible have led to a considerable use of this more permanent material in spite of the difficulty of erection.

However, this objection to concrete has been largely overcome by the introduction of hollow poles, which effect a great saving in weight over solid construction, while providing strength sufficient for any ordinary requirements. A pole carrying electric wires is subjected principally to bending stresses and as a considerable portion of the interior of a cylinder may be removed without producing any appreciable reduction in the strength of a beam, in the case of reinforced concrete it is possible to provide a shell thickness and percentage of reinforcement in proportion to the strength requirements. Aside from the reduction in weight and the flexibility of design, the production of a hollow pole, which would be practically impossible with ordinary concrete casting methods, has involved the perfection of a novel process of manufacture which incidentally produces a concrete of high density, thus affording both high strength and imperviousness to moisture and frost.

attained. The centrifugal force resulting from this motion effects a uniform distribution of the concrete against the surface of the mold so that the thickness is uniform throughout and at the same time compacts the concrete in a thorough manner, the surplus water running out of the cylinder by gravity at the large end. So concentrated does the concrete become as a result of this process that in a few minutes the mold may be withdrawn from the machine without any liability of collapse. This process lends itself readily to the production of ornamental effects.

The poles are made in five classes, namely, classes 1000, 1500, 2000, 3000, and 4000, the class number indicating the pull in pounds which the poles are guaranteed to withstand, if applied two feet from the top with the butt buried a specified minimum distance in the ground varying from 4 ft. for a 20-ft. pole to 8½ ft. for a 60-ft. pole. Typical dimensions and weights of standard poles of the lengths commonly used on railroads are given below. Poles much stronger and of much greater length are also within the scope of this process.

An elaborate series of tests has been made of poles con-

structed according to this process which confirm mathematical calculations of the strength. They also demonstrated a rather unexpected resilience of this type of construction in that the poles attained a most appreciable deflection before any visible signs of failure became apparent.

Class	Length, feet	Diameter at top, inches	Diameter at butt, inches	Approximate weight, pounds
1,000	20	5 1/4	10 1/4	865
	25	5 1/4	12	1,180
	30	5 1/4	13 1/4	1,550
2,000	20	7	12	1,180
	25	7	13 1/4	1,670
	30	7	14 1/2	2,230
4,000	20	8 1/4	13 1/4	1,720
	25	8 1/4	14 1/2	2,440
	30	8 1/4	15 1/4	3,310

ent. This is indicated by the following tabular report of a test made on a 30-ft. class 2000 pole with outside diameters at top and bottom of 7 in. and 14 1/2 in. respectively and a weight of 1,900 lb.

Load, pounds	Deflection at top, inches	Load, pounds	Deflection at top, inches
100	0	3,000	8 1/2
500	3 1/4	3,500	9 5/8
900	1 1/8	4,050	12 5/8
1,500	3 3/4	4,500	13 1/8
2,000	5 1/8	4,550	Broke
2,500	7 1/8		

The hollow concrete pole described above was developed by the Universal Concrete Products Company, Chicago, under the direction of C. F. Massey, president of the C. F. Massey Company, and is generally known as the universal pole. This pole is to be marketed in the future as the Massey reinforced hollow concrete pole.

Agricultural Development in British Columbia

THE UNITED STATES GOVERNMENT, in co-operation with the railways, is working out plans for the settlement of the remaining undeveloped lands of the country. This is being done not only for the purpose of reclaiming swamp, cut-over, and irrigable arid land for cultivation, thereby adding to our natural resources, but to provide farm homes for thousands of returning soldiers.

The United States is behind its northern neighbor, Canada, in this work. In an article in the *Railway Age* of January 11, the part the Canadian Pacific is taking in developing western Canada was described and reference was made to the specific provisions for the settlement of land by veterans of the world war. The Grand Trunk Pacific also deserves credit for being forehanded in the promotion of land settlement projects. At the request of the minister of agriculture of British Columbia, it co-operated in laying out two large areas for settlement on its lines in that province. The Bulkley Valley tract consists of 15,000 acres suitable for cereal growing, vegetable culture, dairy and mixed farming, as well as the propagation of the hardier fruits. The Necho Valley area includes about 35,000 acres. The land is somewhat similar to that of the Bulkley tract, but is more of the plateau type.

The owners of idle lands in these areas have been advised by the government that their lands have been appraised at a certain figure and will be sold by the Land Settlement Board of British Columbia or through the office of the Tourist and Colonization Agent of the Grand Trunk Pacific on terms of long payment. A payment of not less than 20 per cent of the selling price must be made in cash on the delivery of the agreement of sale and the balance is payable in equal yearly installments extending over a period of not exceeding

15 years, with interest payable annually on the unpaid balance at the rate of 7 per cent per annum. The settler is required to establish a bona fide residence in a habitable dwelling upon the land purchased within 12 months from the date of the sale, and must continue to maintain it as long as any part of the selling price or interest remains unpaid. The settler is required to make improvements to all cultivable lands, exclusive of buildings and fences, to the extent of six dollars per acre, within six years from the date of the sale.

If the settler be a returned soldier the price of the land purchased is reduced to the extent of \$500 and the amount of cash required in the first payment is reduced to 10 per cent. If a returned soldier obtains a loan from the Soldiers' Settlement Board of the Dominion government for the purpose of improving or stocking the lands for agricultural or pastoral purposes, he will not be required to observe the conditions governing improvements to the land in the first six years, previously mentioned.

No sale of lands within either of the areas will be made to any person who by reason of his religious doctrines or otherwise is averse to bearing arms and refuses personal military service, or who under any law, Order in Council, or otherwise has for a like reason been exempted from military service in Canada.

Service Tests of Cross Ties

By P. R. Hicks

Engineer of Forest Products, Forest Products Laboratory, Madison, Wis.

BULLETIN NO. 210 of the American Railway Engineering Association contains the 1917 report of the service records of cross ties which have been maintained by the committee on wood preservation of the American Railway Engineering Association in co-operation with the American Wood Preservers' Association. The report consists essentially of tables covering treated and untreated ties, which either had been in service for a period of the last eight years or records where at least 25 per cent of the ties had been removed. The scope of the report is indicated by the table below showing the source of the 350 test records from which information was obtained:

Railroad	SERVICE TEST RECORDS OF CROSS-TIES—1917												
	Creosote					Zinc creosote							
Full cell	Open tank	Lowry	Rueping	Untreated	Zinc chloride	Burnett	Card	Not stated	Zinc tanin	Wellhouse	Others	Species of wood	Total numbers
Atlantic Coast Line.....	1	..	..	2	4	..	..	..	..	..	..	2	3
Atchison, Topeka & S. Fe. ....	..	..	16	..	4	..	..	..	..	..	..	20	..
Chic., Burl'gton & Quincy	1	..	..	..	4	..	..	..	..	..	..	10	18
Chic., Milwaukee & St. P.	4	..	..	..	14	..	..	..	..	..	..	10	45
Chicago & North Western....	1	..	..	12	6	..	..	..	..	..	..	3	75
Chic., Rock Island & Pac. ....	..	..	..	2	..	..	..	..	..	..	..	2	3
Chic. & Western Indiana.....	..	..	..	..	..	..	..	..	..	..	..	1	5
Gal., Harrish'g & San Ant.	19	..	..	7	12	..	..	..	..	..	..	7	51
Great Northern.....	2	..	..	9	21	..	..	..	..	..	..	5	32
Georgia.....	2	..	..	..	..	..	..	..	..	..	..	1	2
Louisville & Nashville.....	1	..	..	..	..	..	..	..	..	..	..	1	1
Missouri Pacific.....	..	..	..	1	1	..	..	..	..	..	..	2	2
Northern Pacific.....	5	..	..	26	4	..	..	..	..	..	..	1	36
Norfolk Southern.....	2	..	..	8	..	..	..	..	..	..	..	3	16
N. Y., New Haven & Hart. ....	..	..	1	..	..	..	..	..	..	..	..	2	4
Oregon-Wash'n Railroad & Navigation Co.	1	..	..	2	3	..	..	..	..	..	..	1	7
Pennsylvania.....	1	..	..	1	..	..	..	..	..	..	..	3	4
Pittsb., Shawmut & Nor. ....	..	..	..	3	..	..	..	..	..	..	..	2	3
Southern Pacific.....	..	..	..	..	5	..	..	..	..	..	..	1	6
St. Louis-San Francisco.	1	..	..	..	..	..	..	..	..	..	..	4	8
Tenn. Coal, Iron and Rail. ....	..	..	..	2	..	..	..	..	..	..	..	6	4
Washington Terminal.....	..	..	..	1	..	..	..	..	..	..	..	1	1
Total 35	2	5	25	87	74	13	13	68	28	71	350		

General News Department

The New York Central has announced the establishment of an employees' monthly magazine, "The New York Central Magazine," the first number of which will be issued on February 1. It is to include all features heretofore published in several smaller periodicals, together with much other matter. The editor is Pitt P. Hand. The magazine will go to everyone of over 100,000 employees.

Director General McAdoo, in conference with newspaper men on Thursday, declared that if his plan for a five-year extension of federal control over the railroads is given a fair test, he is confident it would be possible to so improve the efficiency of the transportation machine that the increased wages established this year could be maintained, and freight and passenger rates could be materially reduced, and it was his impression that it would be possible to reduce rates within the year.

Railroads recently transferred from the Eastern to the Allegheny Region number twelve in all; and the authority of H. A. Worcester over these roads, as district director, Eastern region, terminated on December 16. The twelve companies are: Akron & Barberton Belt; Akron Union Passenger Depot; Baltimore & Ohio, west of Parkersburg and Pittsburgh; Cincinnati, Lebanon & Northern; Dayton & Union; Dayton Union; Lorain, Ashland & Southern; Louisville Bridge & Terminal Railroad; Pennsylvania Lines, west of Erie and Pittsburgh; Pittsburgh, Chartiers & Youghiogheny, Ohio River & Western; Zanesville Terminal Railroad.

The Professional Division of the United States Department of Labor, office at 16 East 42nd street, New York City, invites employers of all classes, who want university graduates in mechanical, electrical and civil engineering, and in chemistry, to make use of the facilities of that office in securing men who are retiring from the army or the navy. J. O. Winslow, special agent, in charge of the office, is making a list of engineers and other technically qualified men who are retiring from the military service and desires to have the names of all men of this class seeking employment. The record of each man is carefully investigated before registration.

From the New York Sun

Word was received in this city Sunday that William G. McAdoo, director general of railways, at a private and confidential meeting of the Senate interstate commerce committee Saturday last made this statement, believed to be accurately quoted: "Unless there is an immediate and better response by Senators and Representatives to my proposal for five year control of the railroads by the federal administration, I shall advise President Wilson by wireless that the railroads should be returned to private owners on January 2."

Mechanical Association Committees Meet To Talk Over June Convention

A joint meeting of the executive committees of the American Railway Master Mechanics' Association, the Master Car Builders' Association, and the Railway Supply Manufacturers' Association is to be held at the Hotel Biltmore, New York, Friday morning to arrange for a convention of the two mechanical associations in June and to discuss the possibilities of holding an exhibit of supply firms. The members of the executive committee of the Railway Supply Manufacturers' Association have been asked to get in touch with as many of their associates as possible with a view to getting their ideas as to the advisability of having an exhibit. It is understood that the general opinion is in favor of so doing, it being felt that the reasons which prevented it in 1917 and

1918 have nearly all been removed, while, on the other hand, the success of the exhibits at some of the smaller mechanical conventions during the past few months has induced strong argument in its favor.

Passengers Burned to Death

A press despatch of December 17 reports the destruction by fire of a tourist coach on an eastbound Canadian Pacific train and says that thirteen passengers are missing. The train stopped for orders at Bon Heur Station, 120 miles west of Fort William, Ontario, at 6:57 a. m. The conductor, walking back toward the rear of the train, saw flames bursting from the front end of the tourist car. Eight passengers rescued were slightly injured.

Salaries of Railroad Engineers

The Engineering Council, New York City, said to represent the American Society of Civil Engineers, the American Institute of Electrical Engineers, the American Society of Mechanical Engineers, and the American Institute of Mining Engineers, wrote recently to the director general of railroads calling attention to the grievances of many engineers on account of the failure of the Railroad Administration to give them sufficient consideration in the fixing of compensation. It was requested that all technical engineers be given suitable separate classification with rates of compensation in accord with their duties and the expense to which they have been put for their education. The letter, signed by A. D. Flinn, secretary of the Engineering Council, asked early action on its request, in behalf of 35,000 members of the different branches of the profession. In a reply dated December 4, signed by G. H. Sines, chairman of one of the wage boards, the Administration says that where the complainants are not taken care of by supplements No. 7 and No. 8, to general order No. 27, their cases should receive special treatment at the hands of the federal managers. Men in the service of the railroads not satisfied with this action are recommended to take their cases up with the Division of Labor, in accordance with the provisions of Circular No. 3.

Dinner to A. W. Trenholm

Yardmasters in St. Paul and Minneapolis gave a banquet at the Hotel Radisson, Minneapolis, on December 10, in honor of A. W. Trenholm, federal manager of the Chicago, St. Paul, Minneapolis & Omaha, who is in charge of the Twin City terminals. The dinner was in the nature of a testimonial to the ability Mr. Trenholm has shown in directing terminal operations and the good feeling which exists between him and the railroad officers and employees in the switching district. Among the guests were R. H. Aishton, Northwestern regional director, who made a brief address; M. J. Gormley, assistant regional director of the Northwestern district, and J. G. Woodworth, traffic assistant in the same district. In addition, a number of prominent railroad officers and business men of Minneapolis and St. Paul were present.

One of the features of the dinner was an address by G. M. Gillette, vice-president of the Minneapolis Steel and Machinery Company, who declared that government ownership of railroads is a menace to the nation and advocated private ownership under government control. Edmund Pennington, president of the Minneapolis, St. Paul & Sault Ste. Marie, also spoke. Prices of food and of all commodities must come down, and, therefore, wages will have to come down also; and it is the duty of employers to make this situation clear to their men so that unnecessary trouble may be avoided.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER 1919

Name of road.	Operating mileage						Operating expenses						Net from railway operation.						
	operated during period.			Total			Maintenance of equipment.			Way and structures.			Trans- portation.			Operating ratio.			
	Freight.	Passenger.	(inc. misc.)	Traffic.	General.	Total.	Traffic.	General.	Total.	Traffic.	General.	Total.	Traffic.	General.	Total.	Operating income (or loss).	Increase (or decrease) comp. with last year.		
Alabama & Vicksburg.....	141	\$171,588	\$47,142	\$22,360	\$74,271	\$90,725	\$6,978	\$197,329	\$88,31	\$39,253	\$28,278	\$10,917	\$10,657	\$10,657	-\$56,722	-\$56,722			
Alabama Great Southern.....	31	591,636	170,444	82,585	61,772	12,380	380,220	706,058	\$122,897	21,229	10,165	10,165	10,165	10,165	10,165	-145,501	-145,501		
Ann Arbor Eastern.....	293	229,614	35,698	62,909	75,286	115,039	9,304	265,705	78,51	72,731	59,543	59,543	4,420	4,420	4,420	-43,233	-43,233		
Arizona Eastern.....	377	665,653	44,729	66,224	52,415	1,000	1,000	1,000	66,05	66,05	13,100	13,100	13,100	13,100	13,100	-121,297	-121,297		
Atlantic, Topka & Santa Fe.....	8,666	11,568,483	2,803,948	15,425,189	1,938,973	3,272,609	113,153	4,902,304	232,189	10,443,855	56,171	56,171	4,417,453	4,417,453	4,417,453	-4,417,453	-4,417,453		
Atlantic & West Point, Birmingham & Atlantic.....	93	124,841	102,962	251,363	120,335	196,857	5,599	241,875	6,293	196,067	8,400	8,400	4,480	4,480	4,480	-4,668	-4,668		
Atlanta, 257,719	639	357,769	79,743	111,312	350,372	33,590	49,366	79,797	152,841	311	236,913	67,62	113,438	113,438	113,438	-209,535	-209,535		
Atlantic Coast Line.....	170	230,926	1,396,715	4,927,088	736,560	975,860	8,642,079	13,270,72	3,363,889	321,296	19,704,320	107,90	107,90	120,000	120,000	120,000	-28,875	-28,875	
Baltimore & Ohio Terminal.....	4,837	3,248,875	1,368,900	2,632,820	18,426,057	3,168,494	8,642,079	13,270,72	3,363,889	321,296	19,704,320	107,90	107,90	120,000	120,000	120,000	-4,209,627	-4,209,627	
Baltimore, Chesapeake & Atlantic.....	87	90,621	37,517	68,178	42,943	79,605	16,346	1,008	86,53	10,931	10,931	10,931	10,931	10,931	10,931	-10,931	-10,931		
Bangor & Aroostook.....	632	1,920,500	1,551,938	6,104,232	3,722,225	87,725	1,174,223	37,137	3,225,910	178,023	5,529,760	100,58	100,58	173,886	173,886	173,886	-138,632	-138,632	
Beaufort, Sour Lake & Western.....	418	87,651	19,330	111,562	22,999	80,245	402	234,000	7,733	37,008	105,81	105,81	105,81	105,81	105,81	-33,239	-33,239		
Belt Ry. Co. of Chicago.....	31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16,442	16,442	16,442	-16,442	-16,442
Baltimore, Rochester & Pittsburgh.....	208	1,477,678	31,645	1,530,951	107,359	42,074	9,150	437,902	21,469	64,65	14,685	14,685	14,685	14,685	14,685	-173,356	-173,356		
Bessemer & Lake Erie.....	206	297,621	4,040	30,002	92,840	6,145	6,145	6,145	6,145	1,388	1,388	1,388	1,388	1,388	1,388	-53,190	-53,190		
Birmingham & Southern.....	27	85,554	1,551,938	6,104,232	3,722,225	87,725	1,174,223	37,137	3,225,910	178,023	5,529,760	100,58	100,58	173,886	173,886	173,886	-4,209,627	-4,209,627	
Buffalo & Susquehanna R. Corp.....	2,258	3,733,623	1,744,420	3,400,189	701,329	4,414,685	187,127	20,303	80,245	7,733	37,008	105,81	105,81	105,81	105,81	105,81	-16,442	-16,442	
Buffalo, Rochester & Pittsburgh.....	584	1,567,802	89,713	1,703,177	287,722	78,744	14,074	784,403	34,172	1,891,844	108,53	108,53	108,53	108,53	108,53	-175,451	-175,451		
Canadian Pacific Lines in Maine.....	233	90,970	17,323	51,957	38,746	1,187	1,187	1,187	1,187	2,264	2,264	2,264	2,264	2,264	2,264	-50,580	-50,580		
Carolina, Clinchfield & Ohio.....	282	377,053	24,255	48,812	34,032	1,744,420	65,146	65,146	65,146	65,146	1,388	1,388	1,388	1,388	1,388	-43,306	-43,306		
Central of Georgia.....	1,918	1,354,949	480,188	701,329	4,414,685	187,127	20,303	80,245	7,733	37,008	105,81	105,81	105,81	105,81	105,81	-452,335	-452,335		
Central of New Jersey.....	684	3,410,215	25,269	46,095	127,313	107,489	6,397	216,885	36,919	495,932	108,73	108,73	108,73	108,73	108,73	-16,442	-16,442		
Central New England.....	301	304,655	67,850	57,993	97,138	100,478	6,538	258,993	15,848	1,891,844	108,53	108,53	108,53	108,53	108,53	-176,106	-176,106		
Central Vermont.....	411	258,604	69,904	74,628	93,926	96,384	1,417,317	2,281,722	2,281,722	2,281,722	2,281,722	2,281,722	2,281,722	2,281,722	2,281,722	-45,176	-45,176		
Charlesapeake & Western Carolina.....	342	5,916,880	1,181,041	7,467,628	93,926	96,384	1,417,317	2,281,722	2,281,722	2,281,722	2,281,722	2,281,722	2,281,722	2,281,722	2,281,722	-5,916,880	-5,916,880		
Chicago & Eastern Illinois.....	1,131	2,213,809	355,358	2,731,341	342,029	811,436	19,968	962,148	50,718	2,199,993	80,54	80,54	80,54	80,54	80,54	-71,761	-71,761		
Chicago & North Western.....	269	1,012,997	1,154,411	1,209,803	119,938	15,541	15,541	10,960	10,960	5,247,082	24,108	24,108	24,108	24,108	24,108	-1,012,997	-1,012,997		
Chicago, Burlington & Quincy.....	9,373	11,145,538	2,328,047	1,449,333	1,970,812	2,737,889	108,536	5,108,536	2,281,722	2,281,722	2,281,722	2,281,722	2,281,722	2,281,722	2,281,722	-1,437,733	-1,437,733		
Chicago, Rock Island & Pacific.....	7,735	775,575	221,586	1,082,409	137,322	298,817	13,091	431,555	2,311,927	7,918	2,311,927	70,727	70,727	70,727	70,727	70,727	-17,634	-17,634	
Chicago, St. Paul, Minn. & Omaha Junction.....	1,100	1,364,451	2,046,232	1,33,653	1,66,456	1,70,240	7,024,640	81,72	7,918	274,554	1,44,609	1,44,609	1,44,609	1,44,609	1,44,609	-10,129	-10,129		
Chicago, Terre Haute & Southeastern.....	374	552,264	20,443	54,594	32,653	22,355	84,941	4,288	8,701	81,330	1,44,609	1,44,609	1,44,609	1,44,609	1,44,609	-38,636	-38,636		
Cincinnati, Indianapolis & Western.....	322	995,489	270,635	1,31,191	140,345	411,406	41,406	41,406	1,44,609	1,44,609	1,44,609	1,44,609	1,44,609	1,44,609	1,44,609	-2,865,584	-2,865,584		
Cincinnati, Northern & Western.....	247	164,205	20,538	14,616,212	1,44,609	1,44,609	1,44,609	1,44,609	1,44,609	1,44,609	1,44,609	1,44,609	1,44,609	1,44,609	1,44,609	-38,943	-38,943		
Cincinnati, Peoria & St. Louis.....	474	250,929	82,992	385,065	62,866	78,744	5,775	155,591	11,560	295,404	76,71	76,71	76,71	76,71	76,71	-73,316	-73,316		
Cleveland, Rock Island & Pacific.....	7,735	1,119,135	2,107,937	10,145,603	1,478,458	7,171,150	79,842	43,067	3,780,579	7,918	7,918	7,918	7,918	7,918	-1,437,733	-1,437,733			
Cleveland, Salt Lake & San Joaquin.....	1,100	992,724	1,149,757	1,181,112	1,155,632	1,16,899	18,553	282,893	55,158	35,814	34,745	34,745	34,745	34,745	34,745	-1,437,733	-1,437,733		
Colorado & Wyoming.....	142	33,205	1,584	36,625	20,443	1,584	1,584	1,584	1,584	44,271	41,183	41,183	41,183	41,183	41,183	-1,437,733	-1,437,733		
Colorado, Cripple Creek & Colorado Springs.....	116	6,616	79,955	9,634	1,37,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	-1,437,733	-1,437,733		
Delaware, Lackawanna & Western.....	163	5,066,219	92,24,220	6,79,812	5,31,556	1,19,956	1,19,956	1,19,956	1,19,956	1,19,956	1,19,956	1,19,956	1,19,956	1,19,956	1,19,956	-1,437,733	-1,437,733		
Denver & Rio Grande & Salt Lake.....	2,651	5,650,544	425,212	3,27,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	-1,437,733	-1,437,733		
Detroit & Toledo Shore Line.....	477	161,905	12,891	16,995	17,806	25,709	1,137	50,759	6,471	101,883	59,93	59,93	59,93	59,93	59,93	-14,702	-14,702		
Detroit, Toledo & Pontiac.....	307	31,615	1,034,259	1,07,820	1,08,610	10,491,93	11,62,464	1,137	18,127	1,137	101,883	59,93	59,93	59,93	59,93	59,93	-14,702	-14,702	
Detroit, Toledo & W. I. Range.....	284	1,034,732	3,154,732	1,08,610	18,127	1,137	18,127	1,137	18,127	1,137	101,883	59,93	59,93	59,93	59,93	59,93	-14,702	-14,702	
Duluth, Missabe & Northern.....	412	3,054,762	1,034,732	1,08,610	18,127	1,137	18,127	1,137	18,127	1,137	101,883	59,93	59,93	59,93	59,93	59,93	-14,702	-14,702	
Duluth, Winnipeg & Northern.....	175	98,689	19,137	120,770	18,127	1,137	18,127	1,137	18,127	1,137	101,883	59,93	59,93	59,93	59,93	59,93	-14,702	-14,702	
Florida East Coast.....	88	31,562	1,027	987,454	14,484	1,19,466	16,007	61,079	8,961	542	3,316	152,775	149,72	149,72	149,72	149,72	149,72	-12,062	-12,062
Florida, El Paso & Southwestern Co.	807	2,091,857	2,34,206	167,325	167,325	167,325	167,325	167,325	167,325	167,325	167,325	167,325	167,325	167,325	167,325	-57,303	-57,303		
Florida, Elgin, Joliet & Eastern.....	1,989	9,54,834	9,42,516	9,42,516	9,42,516	9,42,516	9,42,516	9,42,516	9,42,516	9,42,516	9,42,516	9,42,516	9,42,516	9,42,516	9,42,516	-32,897	-32,897		
Florida, East Coast.....	764	33,477	1,034,732	1,034,732	1,034,732	1,034,732	1,034,732	1,034,732	1,034,732	1,034,732	1,034,732	1,034,732	1,034,732	1,034,732	1,034,732	-32,897	-32,897		
Florida, Johnstown & Cloverville Ry.	3	3	1,027	987,454	14,484	1,19,466	16,007	61,079	8,961	542	3,316	152,775	149,72	149,72	149,72	149,72	149,72	-12,062	-12,062
Florida, Port Worth & Denver City Co.	454	102,833	24,127	135,437	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	2,327,744	-17,338	-17,338		
Florida, Fort Worth & Rio Grande.....	235	608,412	1,08,610	18,127	1,137	18,127	1,137	18,127	1,137	18,127	1,137	18,127	1,137	18,127	1,137	-9,877	-9,877		
Florida, Gulf & Colorado Springs.....	116	3,205	1,034,732	1,034,732	1,034,732	1,													

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER, 1918 (CONTINUED)

Name of road.	Average mileage operated during period.			Operating revenues—			Maintenance of equipment.			Operating expenses—			Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss) comp. with last year.
	Freight.	Passenger.	(inc. misc.)	Total.	Way and structures.	Traffic.	Trans- portation.	General.	Total.	Operating ratio.	Railway tax accruals.	Operating income (or loss) comp. with last year.				
Galveston Wharf	13	\$44,980	\$169,687	\$81,738	\$2,184	\$88	\$287	\$37,911	\$74,072	90.62	\$11,800	-\$4,134	-\$13,718	-\$145,417	-\$12,631	
Georgia Southern & Florida	328	1,289,243	33,031	35,983	332,347	90,480	4,670	225,181	15,631	737,022	285,210	5,930	279,257	16,777	212,536	
Georgia, Rapids & Indiana	402	203,347	87,530	40,460	90,410	10,598	4,016	135,598	10,462	45,571	25,837	13,168	12,643	48,722	48,722	
Grand Trunk Western Lines	569	1,056,118	137,595	69,973	80,236	135,606	9,110	293,779	21,911	542,028	78,43	149,045	124,967	39,297	131,360	
Houston East & West Texas	1,0002	1,556,018	248,905	2,004,327	293,487	416,083	26,557	825,813	62,887	1,625,364	81,09	378,963	103,145	275,818	131,360	
Gulf, Colorado & Santa Fe	8,258	9,964,332	1,322,760	12,090,441	1,527,742	2,031,741	10,093	671,722	46,722	1,339,125	65,48	4,169,931	62,380	3,544,880	860,421	
Gulf, Mobile & Northern	1,116	1,269,710	33,181	1,626,347	1,487,632	1,626,506	56,791	4,065	8,787	8,610	69,646	35,931	14,507	1,168,673	215,536	
Hocking Valley	349	1,376,594	89,292	1,561,990	157,837	326,824	5,412	500,245	21,786	1,01,067	64,72	55,092	54,025	496,898	219,054	
Houston East & West Texas	190	1,259,889	66,803	177,784	20,784	28,091	1,032	70,996	3,540	143,445	80,68	33,924	6,446	27,555	50,705	
Illinoian Central	4,782	7,425,317	1,662,203	8,099,938	1,494,417	1,387,582	2,705,033	71,687	4,135,855	4,886	7,920,510	65,48	231,175	35,450	195,518	121,631
Indiana Harbor Belt	1,159	945,926	291,158	1,381,818	1,487,632	1,626,506	1,626,423	1,969	355,441	14,303	636,813	130,59	1,154,127	30,472	280,472	194,190
Kanawha & Michigan	126	549,727	107,743	692,797	68,579	112,814	3,159	302,955	194,048	13,407	393,004	56,73	300,792	22,336	278,457	194,190
Kansas City, Mex. & Orient	265	112,596	15,277	111,221	132,983	24,458	742	5,612	5,912	154,636	139,160	-14,194	6,250	-20,445	-28,315	
Kansas City Terminal Co.	774	1,240,797	176,206	1,507,355	183,064	27,85	15,110	529,943	36,650	1,04,310	69,08	466,936	25,000	61,835	39,079	35,193
Lake Erie & Western	24	877,574	46,405	972,138	150,355	29,503	30,565	9,631	43,933	22,445	886	113,889	99,36	18,264	21,932	-14,814
Lehigh & Hudson River	900	221	264,826	1,175	2,924	19,253	47,003	39,046	1,620	2,385	8,745	75,33	25,351	8,591	11,521	49,394
Lehigh & New England	1,436	5,338,933	461,473	6,292,522	824,160	1,60,346	41,508	2,71,222	107,303	5,30,161	84,25	990,760	161,471	829,250	149,311	
Leighly Valley	398	617,081	969,815	1,617,118	969,815	26,116	14,627	14,986	42,678	1,565,780	86,16	161,075	88,871	77,745	77,745	
Long Angeles & Salt Lake	1,168	1,036,999	334,452	1,462,289	141,519	328,949	17,049	426,766	27,512	970,769	66,38	491,510	62,095	428,380	35,246	
Louisiana & Arkansas	302	101,635	25,651	134,338	33,068	28,202	2,135	4,205	4,215	5,232	94,66	7,163	10,051	-2,888	-41,444	
Louisiana Ry. & Navigation Co.	356	202,342	43,648	240,250	45,970	48,931	4,215	14,244	7,117	24,739	94,96	13,176	824	-79,585	-10,836	
Louisiana Western	208	252,887	97,024	304,230	26,235	53,089	3,075	91,668	11,038	186,418	61,26	207,844	14,676	191,867	-59,618	
Louisville & Nashville	4,996	7,518,583	2,143,326	10,192,332	1,249,332	2,985,128	111,198	3,811,436	6,208	8,344,233	81,86	1,847,879	211,882	154,403	321,271	
Louisville, Henderson & St. Louis	199	1,187,000	91,000	282,963	31,702	6,099	32,737	14,986	3,120	162,833	56,89	1,125,130	11,700	113,615	59,633	
Maine Central	1,216	950,333	330,910	1,410,692	211,576	540,135	4,561	745,422	1,445,740	103,112	-44,048	63,482	-107,530	-376,329	-376,329	
Michigan Central	1,861	4,892,957	1,174,773	6,644,539	711,159	1,156,99	64,257	1,09,026	4,581,855	68,95	-2,056,674	168,000	1,888,341	148,290	-66,605	
Midland Valley	387	259,683	58,019	332,555	58,453	51,636	1,146	123,323	9,302	243,859	73,39	88,395	17,101	81,255	-10,836	
Minneapolis & St. Louis	1,646	991,350	150,297	1,265,595	226,098	271,174	9,963	470,901	26,558	1,00,713	82,58	211,882	60,887	150,571	-15,669	
Minn. & International Ry. Co.	195	40,862	246,655	69,112	117	21,883	3,159	37,913	3,458	80,323	115,09	-10,540	3,478	-14,202	-26,833	
Minn., St. Paul & Sault Ste. Marie	4,243	521,039	513,608	4,236,832	55,424	730,340	28,123	1,445,759	71,599	2,842,211	66,705	1,414,512	193,339	1,221,037	177,837	
Missouri, Okla. & Gulf	332	1,113,175	1,570,213	18,897	27,292	46,972	1,244	7,626	8,734	161,036	116,61	-22,98	9,900	-3,99	-66,605	
Missouri Pacific	7,108	6,234,172	8,451,923	1,27,535	301,694	301,674	65,465	3,444,337	204,589	8,024,554	94,85	433,388	283,786	-193,329	-193,329	
Monongahela Connecting	5	493,926	138,284	667,497	26,156	44,518	2,156,566	21,497	58,858	41,309	1,294,380	92,85	43,376	110,545	64,707	
Morgan's, La. & Tex. R. & S. S. Co.	400	1,421,747	150,355	1,626,223	37,156	52,030	511	128,332	6,821	225,550	95,39	10,873	2,443	8,429	-51,321	
Nevada Northern	1,248	1,421,615	15,115	2,127,655	26,177	31,060	32,274	28,278	250,111	17,848	466,123	68,50	213,334	179,700	-140,218	
Newburgh & South Shore R. R. Co.	168	241,615	216,216	216,216	21,497	26,093	16,845	22,457	26,703	64,099	3,483	116,772	67,75	53,074	12,136	
New Orleans Great Northern	203	400,522	108,934	581,020	63,980	112,787	7,856	262,933	10,465	461,815	72,04	141,316	54,818	8,188	-13,222	
New Orleans, Texas & Mexico	191	153,890	144,194	152,933	166,069	32,093	30,12	29,218	50,872	4,939	120,099	66,28	21,500	34,247	-20,192	
New York Central	6,079	20,015,157	5,433,997	28,637,375	3,204,515	4,241,199	196,862	10,561,637	59,638	59,933	19,138,794	67,60	121,206	8,319,618	225,555	
New York, Chicago & St. Louis	572	2,122,376	124,173	2,37,661	2,69,957	31,572	9,933,815	31,572	1,04,939	7,051	131,039	49,938	131,26	111,206	-12,136	
New York, New Haven & Hartford	2,007	4,996,262	9,321,574	3,236,249	9,133,355	1,37,518	2,109,981	4,219,18	3,494,443	266,000	8,024,551	98,49	1,324,578	266,000	1,057,728	
New York, Ontario & Western	567	629,380	121,540	900,824	149,812	260,004	8,728	446,785	21,910	88,238	17,156	35,800	12,212	-22,540		
New York, Philadelphia & Norfolk	121	561,568	110,085	727,733	76,163	200,411	9,419	16,425	10,698	62,976	86,49	98,258	14,935	-33,018		
New York, Susquehanna & Western	135	417,552	50,072	504,877	29,531	47,803	27,244	199,677	10,806	290,330	57,54	214,466	19,929	148,493		
Oregon Short Line	2,076	6,749,366	1,00,034	8,017,950	8,017,950	2,138,755	2,138,755	3,840	2,683,130	100,655	5,854,279	72,92	217,671	200,000	1,973,512	
Panhandle & Santa Fe, R.R.—East	5,342	25,395,664	8,275,924	10,6,970	510,798	11,127,771	11,130,526	11,130,526	24,642,26	165,315	6,607,869	54,31	55,937	12,872	-13,222	
Panhandle & Santa Fe, R.R.—West	772	415,965	114,942	47,735,927	11,373,983	1,373,983	1,373,983	1,373,983	15,316,758	698,248	42,206,526	98,49	1,177,334	221,229	-13,222	
Panhandle & Santa Fe, R.R.—West	1,754	8,134,335	1,336,340	10,388,824	1,373,983	1,373,983	1,373,983	1,373,983	14,256,047	157,338	1,179,081	71,72	836,996	766,355	-36,155	
Penn. Marquette Company	2,233	3,288,399	328,440	2,980,109	306,930	582,086	23,19	1,114,414	1,081,892	1,081,892	1,081,892	124,44	-27,349	1,427,289	1,1	

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER, 1918 (CONTINUED)

Name of road.	Average mileage operated during period.			Operating revenues			Operating expenses			Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decrease) comp. with last year.		
	Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Maintenance of equipment.	Traffic.	Transportation.	General.	Total.						
Pittsburgh, Shawmut & Northern.....	204	\$1,353	\$3,973	\$23,473	\$47,608	\$1,013	\$34,948	\$5,652	\$112,974	-\$1,033	\$17,779	-\$36,217	-\$18,760		
Port Reading.....	21	185,942	34,755	787,257	52,022	40	93,791	10,9	158,974	29,033	10,000	29,033	66,572		
Richmond, Fredericksburg & Potomac.....	87	214,022	34,755	64,437	56,022	40	208,876	10,602	337,917	13,211	30,162	23,840	139,193		
Rutland.....	415	255,810	80,139	74,398	66,804	4,761	210,291	12,682	47,098	11,021	18,128	16,488	64,876		
St. Joseph & Grand Island.....	258	188,995	29,035	240,797	42,663	3,460	108,322	9,743	203,948	8,39	8,39	18,765	-135,958		
St. Louis, Brownsburg & Mexico.....	548	315,518	112,436	461,585	65,035	59,091	1,208	10,651	239,116	51,80	222,669	9,944	212,525		
St. Louis, Merchants Bridge Term.....	9	4,025	523	482	42,843	1,081	210,796	6,719	381,239	101,04	1,041	12,601	81,978		
St. Louis-San Francisco & Potomac.....	4,761	1,672,938	6,612,190	969,609	1,055,815	39,074	2,408,252	168,881	5,070,445	1,541,545	215,632	1,320,628	-507,678		
St. Louis, Southwestern & Texas.....	814	369,308	101,004	1,39,768	25,684	6,222	231,957	19,748	65,016	12,28	19,531	147,485	346,635		
St. Louis, Southwestern.....	968	791,478	179,955	1,026,629	150,190	10,765	306,529	32,885	92,943	90,58	96,685	42,094	464,124		
St. Louis, San Francisco & Texas.....	134	105,116	11,442	123,620	18,096	54,093	1,154	53,365	5,377	106,85	8,467	1,648	-10,115		
San Antonio & Aransas Pass.....	732	3,563	2,069,703	974,093	3,347,369	516,722	746,183	51,304	95,509	2,990,538	89,33	36,831	118,211	37,178	
Seaboard, Portland & Seattle.....	554	1,25,946	8,124,193	3,230,218	12,269,788	1,35,588	11,199	2,25	72,883	1,669	107,555	76,76	31,153	504,576	
Southern, Buffalo Ry. Co.....	6,983	8,124,193	3,230,218	12,269,788	1,372,551	2,141,122	119,001	4,483,699	228,733	8,412,457	68,556	3,853,331	295,093	3,561,761	
Southern in Mississippi.....	278	111,494	40,565	162,714	45,789	16,851	2,445	76,850	4,509	146,444	90,00	16,270	9,000		
Southern Pacific.....	7,050	10,863,506	3,29,636	15,23,100	1,489,496	2,104,167	10,127	56,151	197,805	9,37,676	61,43	5,242,394	-164,241		
Spokane International Ry. Co.....	554	678,239	148,025	899,060	137,245	126,361	4,625	250,907	21,158	541,515	60,23	337,545	50,200	30,022	
Spokane, Portland & Seattle.....	23	91,559	61,608	172,723	20,959	1,04,33	461,196	6,739	21,542	87,09	14,000	7,942	14,000	-20,281	
Tennessee Central R.R. Ass'n of St. Louis.....	273	191,676	73,367	279,168	63,939	126,928	9,16	150,993	5,318	254,145	91,03	25,023	18,910	43,019	
Texarkana & Ft. Smith.....	81	109,802	3,839	141,259	385,560	127,720	10,005	18,380	141	155,065	1,04,2	34,892	37,917	-3,025	
Texas & New Orleans.....	469	443,693	1,889,554	583,787	636,536	104,33	231,743	3,686	13,060	59,928	93,58	6,858	20,747	-47,772	
Texas & Pacific.....	35	1,033,039	80,053	1,333,380	172,44	239,086	5,105	426,757	23,019	869,061	76,67	264,320	30,359	23,961	
Toledo, Peoria & Western.....	435	104,630	42,015	155,508	29,849	46,738	2,232	74,624	5,633	159,158	102,34	3,650	12,150	-26,001	
Toledo, St. Louis & Western.....	454	69,522	65,713	76,458	136,790	54,954	4,866	247,275	6,693	546,339	71,18	22,119	195,957	-24,944	
Trinity & Brazos Valley.....	368	91,034	15,849	11,092	36,531	42,681	1,399	53,968	6,919	141,499	127,37	30,407	6,580	-36,987	
Union Pacific.....	3,613	8,612,507	1,668,952	10,897,725	998,359	1,586,875	41,210	2,592,231	226,622	5,619,229	51,56	5,278,496	273,642	5,004,320	
Union R.R. of Pennsylvania.....	35	150,478	654	174,276	379,298	461,196	1,785	11,768	11,662	63,749	2,021,044	75,43	658,254	63,804	
Utah Railway.....	98	160,359	63,173	210,723	38,945	1,04,2	174	24,698	1,043	101,411	6,363	80,411	14,180	13,814	
Vicksburg, Shreveport & Pacific.....	171	1,25,946	1,25,946	1,25,946	1,25,946	1,25,946	1,25,946	1,25,946	1,25,946	1,25,946	1,25,946	1,25,946	1,25,946	1,25,946	
Virginia.....	2,519	3,803,220	896,466	5,067,330	636,998	1,04,688	62,132	2,095,881	102,172	3,988,128	78,11	1,109,203	123,612	985,349	
Washington Southern.....	35	99,995	207,700	404,235	808,413	225,590	2,179	218,928	7,722	499,407	5,311	193,783	66,25	190,145	
West Jersey & Seashore.....	359	133	849,100	168,803	1,065,733	197,932	206,481	7,168	394,014	21,991	844,904	78,99	220,829	40,115	180,700
Western Pacific.....	1,011	1,355,646	40,016	1,519,074	229,156	288,389	5,629	55,016	25,975	1,107,932	83,51	411,273	41,991	13,991	
Wheeling & Lake Erie.....	511	1,355,646	40,016	1,519,074	229,156	288,389	5,629	55,016	25,975	1,107,932	79,92	411,282	53,982	4,944	
Yazoo & Mississippi Valley.....	1,382	1,551,596	328,415	1,970,668	271,096	414,009	15,794	675,085	48,445	1,407,635	71,42	563,033	64,029	498,864	
TEN MONTHS OF CALENDAR YEAR 1918															
Alabama & Vicksburg.....	141	\$1,265,215	\$504,580	\$1,887,448	\$206,674	\$47,571	\$39,932	\$820,930	\$73,862	\$1,632,362	82,13	\$355,087	\$110,833	\$244,032	
Alabama Great Southern.....	312	5,098,773	7,197,597	3,513,923	6,10,734	1,796,486	2,885,535	1,04,688	6,165,915	74,23	1,94,008	210,717	1,730,218	4,980	
Ann Arbor.....	293	2,193,376	4,458,508	2,850,605	47,0175	632,122	46,697	1,360,634	93,166	2,608,528	91,50	242,077	131,000	110,237	
Arizona Eastern.....	312	3,026,549	4,70,982	3,722,021	67,7242	52,145	442,163	20,495	1,087,949	144,468	64,076	174,309	107,300	-69,713	
Atchison, Topeka & Santa Fe.....	8,646	92,050,612	30,922,377	133,360,792	16,540,200	27,30,367	416,132	45,31,618	2,326,232	97,182,507	69,33	1,307,946	12,634,722	1,136,938	
Atlanta & West Point.....	93	974,526	855,227	2,041,704	211,085	37,683	36,059	684,208	1,325,425	649,895	1,324,783	68,31	646,921	83,900	562,946
Atlanta, Birmingham & Atlantic.....	639	1,432,523	1,884,865	3,503,185	339,204	389,873	12,435	1,645,133	126,657	4,018,403	106,51	1,207,599	157,000	-80,225	
Atlantic Coast Line.....	4,839	29,04,663	13,540,216	46,880,850	5,397,298	8,905,860	528,908	179,752,277	954,90	1,745,501	124,077	1,103,657	115,800	987,857	
Baltimore & Ohio.....	311	4,844,106,194	25,04,231	14,2,311	40,11,217	40,11,217	1,68,724	60,72,231	166,301	2,41,075	64,076	1,307,946	12,634,722	1,136,938	
Baltimore, Chesapeake & Atlantic.....	91	3,726,693	3,77,400	1,170,675	10,13,377	1,67,935	12,005	681,856	29,984	1,23,310	95,95	47,365	29,227	225,169	
Bangor & Aroostook.....	632	3,099,310	638,666	3,557,702	687,935	966,412	39,088	1,609,391	124,339	3,49,039	87,59	48,662	177,530	100,740	
Beaumont, Sour Lake & Western.....	118	841,194	2,795,887	3,947,1	1,187,194	1,13,338	16,9,122	13,080	3,92,349	4,7,16	66,84	48,662	177,530	121,894	
Belt Ry. Co. of Chicago.....	31	885,390	3,124,125	2,908,244	347,374	3,28,438	338,316	697,708	3,69,308	3,187,472	75,208	1,04,765	16,490	373,136	
Bessemer & Lake Erie.....	36	2,795,887	3,027,631	1,844,238	4,862,712	4,862,712	11,065	3,695,320	192,348	7,556,721	65,90	3,99,929	218,742	3,691,186	
Bingham & Garfield.....	2,258	35,893,202	15,82,935	10,383	7,455,422	10,46,307	10,46,307	12,823	56,734	48,348	1,51,13	1,51,13	52,08	565,360	
Birmingham, Southern.....	2,258	35,893,202	15,82,935	10,383	7,455,422	10,46,307	10,46,307	12,823	56,734	48,348	1,51,13	1,51,13	52,08	565,360	
Buffalo, Rochester & Pittsburg.....	584	13,690,513	1,100,125	15,393,611	2,29,423	4,862,712	159,752	6,801,606	322,57	14,427,638	93,73	965,973	267,342	677,537	
Canadian Pacific Lines in Maine.....	233	1,472,819	33,75	1,844,238	440,094	25,372	1,719,069	2,11,406	287,997						

REVENUES AND EXPENSES OF RAILWAYS

TEN MONTHS OF CALENDAR YEAR 1918 (CONTINUED)

RAILWAY AGE

REVENUES AND EXPENSES OF RAILWAYS

TEN MONTHS OF CALENDAR YEAR 1918 (CONTINUED)

Name of road.	Average mileage operated during period.	Operating revenues		Maintenance-of-equipment.	Way and structures.	Traffic.	Transportation.	Transportion.	General.	Total.	Operating ratio.	Net from railway operation.	Railway tax acc'ts.	Operating income comp. with (or loss). last year.	
		Freight.	Pasenger. (inc. misc.)												
Louisiana Ry. & Navigation Co.	356	\$1,773,184	\$601,735	\$2,515,499	\$417,567	\$1,105,823	\$57,657	\$91,825	\$78,697	\$2,063,344	82.02	\$453,134	\$140,000	+\$89,398	
Louisiana Western	207	2,387,317	1,934,071	3,625,596	279,002	19,301,206	1,157,099	32,039,126	98,963	\$1,897,729	52.27	1,732,018	1,592,076	191,284	
Louisville, Henderson & St. Louis.	5,629	59,195,411	19,780,730	63,560,675	10,296,037	19,301,206	1,157,099	32,039,126	1,442,994	64,484,661	77.17	19,763,014	2,527,707	202,949	
Maine Central	199	1,625,387	618,528	2,331,952	331,175	330,658	57,412	851,422	49,529	1,624,506	69.48	173,446	667,028	35,943	
Maryland, Delaware & Virginia Ry. Co.	1,216	8,794,217	3,644,900	13,538,523	2,223,212	7,117,685	74,10,900	321,370	12,898,913	95.28	670,003	10,631	-30,631	-2,542,916	
Michigan Central	7,711,117	1,686,438	9,953,872	1,773,197	2,462,806	1,366,479	4,70,142	428,480	33,038	183,929	96.53	1,624,506	46,291	-17,985	-23,640
Midland Valley & St. Louis.	1,195	566,639	232,547	843,183	177,393	165,911	4,454	4,454	24,172,229	81,67	4,384,473	1,786,582	2,557,47	-5,521,085	
Minneapolis & St. Louis.	1,108	2,339,238	1,97,444	2,600,364	2,600,364	334,600	4,274	1,067,119	56,006	1,742,364	115,76	-236,179	1,786,582	-536,469	
Minn. & International Ry. Co.	5	4,342,650	28,544,702	4,431,448	5,796,101	313,799	12,658,180	575,616	575,616	41,917,996	100.97	-8,620	15,578	-24,198	
Monongahela Connecting Co. & S. S. Co.	400	6,676,489	1,548,496	6,722,233	7,01,161	1,139,75	21,925	57,536	89,531	1,734,364	181,46	1,622,800	12,027,357	-2,038,488	
Morgan's, La. & Tex. R. & S. S. Co.	1,237	11,886,213	2,525,757	1,498,186	13,149,312	55,68,240	6,20,254	10,434,074	64,105	22,939,049	72.40	1,732,018	1,592,076	191,284	
Nashville, Chattanooga & St. Louis.	163	2,040,271	1,169,337	2,158,455	16,280,288	15,356,786	15,356,786	1,021,195	1,021,195	1,021,195	98.85	608,505	513,188	91,809	-1,980,022
Missouri, Okla. & Gulf.	7,244	51,380,455	16,280,288	7,128,969	13,163,972	1,624,971	3,82,353	5,25,295	9,345,368	9,345,368	98.85	608,505	46,291	-17,985	-23,640
Missouri Pacific.	1,117	9,022,773	1,698,169	1,311,396	1,624,971	3,82,353	5,25,295	11,903	885,445	52,983	1,76,098	67.76	83,866	37,566	-17,019
Mobile & Ohio.	1,195	2,339,238	1,97,444	2,600,364	2,600,364	334,600	4,274	1,067,119	56,006	1,742,364	115,76	-236,179	1,786,582	-536,469	
Monongahela.	2,236,209	2,236,209	2,236,209	2,236,209	2,236,209	334,600	4,274	1,067,119	56,006	1,742,364	115,76	-236,179	1,786,582	-536,469	
New Orleans Great Northern.	203	3,599,024	1,257,941	5,411,699	5,88,494	1,165,702	331,151	397,445	397,445	397,445	95.63	1,622,800	10,777,055	-2,236,820	
New Orleans, Texas & Mexico.	284	1,186,191	409,884	1,639,809	301,703	50,848,445	301,703	331,121	331,121	331,121	95.63	1,622,800	10,777,055	-2,236,820	
New Orleans, Texas & Mexico.	6,079	15,294,453	1,621,150	17,961,513	27,612,233	27,612,233	27,612,233	2,020,256	2,020,256	2,020,256	95.63	1,622,800	10,777,055	-2,236,820	
New York Central.	572	7,217,553	1,527,451	8,791,749	8,791,749	8,791,749	8,791,749	1,217,775	1,217,775	1,217,775	95.63	1,622,800	10,777,055	-2,236,820	
New York, New Haven & Hartford.	2,004	42,647,289	32,332,861	85,055,227	10,431,496	16,791,575	385,464	38,534,322	100,71,45	1,742,856	74.39	1,622,800	10,777,055	-2,236,820	
New York, New Haven & Western.	567	6,062,638	1,016,335	9,016,335	12,006,357	1,261,496	2,087,761	89,657	4,395,588	1,742,856	81,72	1,622,800	10,777,055	-2,236,820	
New York, Ontario & Western.	121	4,608,041	1,016,335	5,509,360	3,588,234	1,355,994	1,355,994	98,975	2,76,474	1,742,856	81,72	1,622,800	10,777,055	-2,236,820	
New York, Phil. & Norfolk.	135	2,731,796	7,031,796	2,782,604	2,782,604	2,782,604	2,782,604	17,392,765	489,784	489,784	489,784	95.63	1,622,800	10,777,055	-2,236,820
New York, Susquehanna & Western.	2,083	3,445,291	8,116,987	6,264,435	7,822,284	8,116,987	8,116,987	1,097,743	1,097,743	1,097,743	95.63	1,622,800	10,777,055	-2,236,820	
Norfolk & Western.	907	3,445,132	1,239,849	4,673,843	848,758	1,165,702	331,151	397,445	397,445	397,445	95.63	1,622,800	10,777,055	-2,236,820	
Norfolk Southern.	6,588	2,225,738	14,554,543	82,813,285	12,006,860	13,471,140	67,239	2,422,259	2,422,259	2,422,259	95.63	1,622,800	10,777,055	-2,236,820	
Northern Pacific.	2,321	20,13,971	14,554,543	28,045,123	3,709,157	2,087,761	2,087,761	1,20,021	1,20,021	1,20,021	95.63	1,622,800	10,777,055	-2,236,820	
Oregon Short Line.	2,239	17,839,781	4,458,980	1,458,980	3,120,197	3,120,197	3,120,197	3,120,197	3,120,197	3,120,197	95.63	1,622,800	10,777,055	-2,236,820	
Philadelphia & Reading.	1,224	2,776,337	1,887,492	4,422,168	1,321,544	1,321,544	1,321,544	4,231,386	4,231,386	4,231,386	95.63	1,622,800	10,777,055	-2,236,820	
Panhandle & Santa Fe.	1,754	5,686,543	1,399,892	7,37,670	5,557,735	5,557,735	5,557,735	1,742,856	1,742,856	1,742,856	95.63	1,622,800	10,777,055	-2,236,820	
Pennsylvania Co. R.—East.	543	19,404,474	7,889,502	30,253,436	39,053,880	80,803,581	2,498,363	135,78,399	1,742,856	1,742,856	1,742,856	95.63	1,622,800	10,777,055	-2,236,820
Pennsylvania Co. R.—West.	193	213,311	60,925	1,055,580	1,20,021	1,20,021	1,20,021	2,43,386	2,43,386	2,43,386	95.63	1,622,800	10,777,055	-2,236,820	
Pelican Union.	2,239	17,839,781	4,458,980	1,458,980	3,10,481	5,15,791	2,087,761	2,087,761	2,087,761	2,087,761	95.63	1,622,800	10,777,055	-2,236,820	
Pere Marquette Reading.	1,224	2,776,337	1,887,492	4,422,168	1,321,544	1,321,544	1,321,544	4,231,386	4,231,386	4,231,386	95.63	1,622,800	10,777,055	-2,236,820	
Pittsburgh & Lake Erie.	2,236,209	2,236,209	2,236,209	2,236,209	2,236,209	3,11,901	1,097,743	1,097,743	1,097,743	1,097,743	95.63	1,622,800	10,777,055	-2,236,820	
Pittsburgh & Shawmut R. R. Co.	24	1,078,637	1,366,396	92,109	1,581,785	403,389	20,531,174	907,951	1,742,856	1,742,856	1,742,856	95.63	1,622,800	10,777,055	-2,236,820
Pittsburgh & West Virginia.	6,394	49,288,188	15,580,077	72,249,632	8,181,935	1,050,650	207,943	506,072	12,544	1,742,856	81,72	1,622,800	10,777,055	-2,236,820	
Pittsburgh, Penn., Cincinnati, Chic. & St. Louis.	204	1,517,163	2,733,968	5,602,785	292,750	199,122	199,122	199,122	1,01,361	1,742,856	81,72	1,622,800	10,777,055	-2,236,820	
Pittsburgh, Shawmut & Northern.	21	2,303,023	1,050,650	1,050,650	613,190	422,474	2,087,761	2,087,761	2,087,761	2,087,761	95.63	1,622,800	10,777,055	-2,236,820	
Pittsburgh Reading, Frederickburg & Potomac.	87	2,302,662	3,11,676	3,661,414	5,517,947	5,517,947	5,517,947	63,310	1,00,218	1,742,856	81,72	1,622,800	10,777,055	-2,236,820	
St. Joseph & Grand Island.	548	2,412,962	984,687	3,065,038	3,405,498	3,405,498	3,405,498	4,95,332	1,05,021	1,742,856	81,72	1,622,800	10,777,055	-2,236,820	
St. Louis, Merchants' Bridge Term.	9	3,663,411	17,041,938	5,362,977	8,177,633	1,05,380,559	1,05,380,559	1,05,380,559	1,05,380,559	1,05,380,559	95.63	1,622,800	10,777,055	-2,236,820	
St. Louis, San Francisco & Texas.	134	966,785	1,30,428	1,30,428	2,03,445	10,608,859	1,22,422	2,114,186	2,114,186	2,114,186	95.63	1,622,800	10,777,055	-2,236,820	
St. Louis, Southwestern of Texas.	914	8,117,292	1,17,292	3,03,445	10,608,859	1,22,422	2,114,186	2,114,186	2,114,186	2,114,186	95.63	1,622,800	10,777,055	-2,236,820	
Southern in Mississippi.	278	6,247,862	6,247,862	34,668,477	1,05,380,559	1,05,380,559	1,05,380,559	1,05,380,559	1,05,380,559	1,05,380,559	95.63	1,622,800	10,777,055	-2,236,820	
Southern in Missouri.	1,018														

New Chicago Electrification Ordinance Proposed

The Chicago Railway Terminals Commission has presented a new tentative ordinance to the Railway Terminals Committee of the Chicago city council providing for the construction of a new passenger terminal by the Illinois Central and the progressive electrification of all the lines of that road in conjunction with lake front improvements proposed by the Chicago Plan Commission. The tentative ordinance differs from that proposed by the Illinois Central, an outline of which was published in the *Railway Age Gazette* of December 22, 1916, in that it calls for complete electrification of the company's lines in the city instead of the electrification of the suburban service only. Electrification is provided for through periods of years; the first step will be the electrification of the entire suburban service and during the next period, according to the ordinance, the road would electrify all its freight tracks north of twelfth street; during the third period all the freight service between Twelfth street and the city limits would be taken in, and in the fourth period, all through passenger trains. In addition the ordinance stipulates that the railroad company provide railroad connections across its tracks to a new harbor which is to be created between Sixteenth and Thirty-first streets.

Senate Hearings on Railroad Problem

On another page will be found an article concerning the attitude of Congress toward Mr. McAdoo's proposal to extend government control for five years. Just as this paper was going to press, the following message was telephoned from Washington:

At a meeting Thursday morning of the Senate committee on interstate commerce, Senator Smith of South Carolina, chairman, was instructed by resolution to announce that an inquiry into every phase of the railroad situation would be conducted, the hearings to begin Thursday, January 2, 1919. Senator Smith stated that in the order named representatives would be heard from the Railroad Administration, Mr. McAdoo, the Interstate Commerce Commission, the railroads, state railroad commissions, shippers, chambers of commerce, and other interested organizations. He made it plain that it was desired to have one responsible representative nominated by each body as the committee would not have time to hear every individual who might want to express his views. Senator Smith asked that those organizations desiring to send representatives to the hearing notify him as promptly as possible in order that he may inform them as to the time they will be expected to appear before the committee. Committee members were unanimous for the most thorough investigation possible into the railway situation. The hearings will be before the full committee.

The Train Despatchers

John F. Mackie, of Chicago, the long time secretary of the Train Despatchers' Association of America, is out some \$1,800 by his unselfish devotion to the interests of the association, and the present secretary, J. P. Finan, of Needles, California, is engaged in a laudable effort to raise the money necessary to repay the debt. He has issued an appeal to railroad officers and in response thereto he has received numerous ten-dollar checks from general managers and other prominent officers, but is still far short of the desired total. Mr. Mackie's too-hopeful endeavors to vitalize the association, against insuperable obstacles, are well known to our readers, and no urging should be necessary to induce those of his friends who are willing and able to contribute to this fund. Mr. Finan suggests that any one who does not want his money to waste time in traveling to California and back, can send a check direct to Mr. Mackie, 7122 Stewart avenue, Chicago. To those unacquainted with the facts it may be proper to add that the "T. D. A. of A." went to pieces because those train despatchers who are truly and intelligently devoted to the elevation and improvement of the despatchers' calling are too few and too scattered to carry on an association for that purpose; whereas, the new association, to which a large percentage of the membership has seceded, makes the securing of increased salaries its main object, and, of course,

attracts every individual who is willing to advance the amount of a year's dues on the chance of getting back many times the sum expended. This is not the official explanation, but it seems the reasonable one.

Western Railway Club Meeting

The Western Railway Club met at the Hotel Sherman on December 16. R. H. Aishton, regional director of the Northwestern regional district, gave an informal talk and Dr. Hermann Von Schrenk, consulting timber engineer, St. Louis, spoke on the "Selection and Proper Utilization of Lumber in Car Construction." Mr. Aishton reviewed briefly some of the more important changes that have been made by the government in the operation of the roads in the West. He spoke particularly of the reduction in passenger service, of the unification of ticket offices and terminals, of the train-lot plan of moving carload freight, and the introduction of sailing days for 1.c. 1. freight. He also mentioned the pooling of repair facilities and the short routing of traffic and cited statistics to show how the amount of business handled in 1918 had increased over previous years.

Mr. Aishton said that many of the changes made by the Railroad Administration should be retained permanently, as they benefited both the railroads and the shippers. He urged all railroad men to give careful consideration to the problems involved in the readjustment of the railroads. The settlement of this problem must be made without regard to partisan prejudice. The shippers, the railroad employees, the railway supply employees and the great body of people whose financial standing depends on the stability of railroad securities must all be considered. The question is a large one and on its proper solution depends not only the future prosperity of the railroads, but the prosperity of the entire country.

Dr. Von Schrenk outlined the field for various species of wood in car construction. The number of varieties usually specified is very limited and by substituting wood with similar properties for some of those commonly used, considerable savings can be effected. Dr. Von Schrenk advocated the more thorough study of the properties of timber. The ordinary railroad specifications for lumber are stated in very general terms and if they were made more specific it would insure the selection of material suitable for the purpose for which it is intended. He also advocated the more general use of preservative treatment for parts of cars which normally failed because of decay of the timbers.

Berlin-Bagdad Line

One of the greatest German schemes which the war has overthrown was the ambition for a German-controlled railway line from Hamburg to Bagdad. Its eventual history rests with the peace conference to decide.

As to the actual condition of the line, the tunnels through the Taurus Mountains were opened for broad-gage traffic last month and trains can now run as far as Neisibin, 100 miles west of Mosul (about 600 miles from Constantinople and two-thirds the distance from Constantinople to Bagdad). The rolling stock has been much deteriorated by overwork.

There are still plenty of freight cars serviceable, but two-thirds of the engines are unfit for work because of lack of spare parts, which Germany has not supplied. Nevertheless, a limited daily traffic from Constantinople to Neisibin would be possible, together with a larger service of trains in Western Asia Minor, from which the food supplies of Constantinople are drawn, if it were not for a lack of coal, which has brought the working of the line to extremely reduced and irregular proportions.

Most of the locomotive enginemen are German civilians who have been in the country thirty years.

As to the probable time required to complete the railway to the Persian Gulf, Edouard Haguenin, director general of railways, says that depends on what the British have done in Mesopotamia. Several hundred miles of track laid by the Turks beyond Neisibin would need to be reconstructed, as the work was hastily done with poor materials. Working from both ends with adequate supplies of material and labor and with the use of the British military railways in Mesopotamia

as lines of supply, he thought that trains might be running through to the Persian Gulf in two years.—*Constantinople despatch in the New York Times.*

National Transportation Conference

The first of a series of conferences of representatives of all the country's interests affected by transportation, called by the railroad committee of the Chamber of Commerce of the United States with a view to the eventual formulation of a statement of fundamental principles to serve as a basis for public discussion was held in Washington on December 12 and 13. The conference was authorized by the chamber at the annual meeting in Chicago last April. The conference was informal and each member was free to place before the meeting his individual views. There was a general discussion from various viewpoints, but no effort was made to reach any conclusions and no vote was taken on any question of transportation policy. Another conference is to be held in about a month.

Walker D. Hines, assistant director general of railroads, attended in place of Mr. McAdoo, and explained his reasons for proposing a five-year extension of the period of federal control. His address appears elsewhere. Those present were:

Financial Group.—Harry A. Wheeler, president, Chamber of Commerce of the United States; Paul M. Warburg, formerly vice-governor Federal Reserve Board; Robert F. Maddox, president, American Bankers' Association; Nathan L. Amster, president, Investors' Protective Association of America.

Commercial and Industrial Group.—Frederick J. Koster, president, San Francisco Chamber of Commerce; W. W. Salmon, president, General Railway Signal Company; Charles S. Keene, vice-president, American Tobacco Company.

Agricultural Group.—Eugene D. Funk, Funk Brothers Seed Company; R. L. Munce, president, Pennsylvania Good Roads Association; H. C. Stuart, chairman National Agricultural Advisory Committee.

Civic and Social Group.—R. G. Rhett, banker, formerly president Chamber of Commerce of the United States; Charles P. Neill, chairman, Board of Adjustment No. 1, United States Railroad Administration.

Labor Group.—Frank Morrison, secretary, American Federation of Labor; B. M. Jewell, acting president, Department Railroad Employees, American Federation of Labor; Henry Sterling, legislative committeeman, American Federation of Labor; W. N. Doak, vice-president, Brotherhood of Railroad Trainmen; S. E. Heberling, international president, Switchmen's Union of North America.

Economic Group.—E. R. A. Seligman, professor of economics, Columbia University; Henry W. Farnam, professor of Political Economy, Yale University; John R. Commons, professor of economics, University of Wisconsin; Frederick A. Cleveland, secretary, Industrial Service and Equipment Company.

Transportation Group.—Walter S. Dickey, W. S. Dickey Clay Manufacturing Company, member Inland Waterways Committee, United States Railroad Administration; John T. Stockton, president, Joseph Stockton Transfer Company; J. N. Shannahan, president, Newport News & Hampton Gas and Electric Company.

Government Group.—Winthrop M. Daniels, chairman, Interstate Commerce Commission; Charles E. Elmquist, president, National Association of Railway and Utilities Commissioners.

Railroad Committee.—George A. Post, chairman Railroad Committee, Chamber of Commerce of the United States; F. C. Dillard, lawyer; Edward J. Frost, vice-president, Willian Filene's Sons Company; Emory R. Johnson, professor of transportation, University of Pennsylvania; Charles E. Lee, traffic manager, Ford, Bacon & Davis Corporation; W. Z. Ripley, professor of transportation, Harvard University; Alexander W. Smith, lawyer.

Chamber of Commerce.—Elliot H. Goodwin, general secretary; Richard Waterman, secretary, railroad committee; John M. Redpath, chief of research bureau; F. N. Shepherd, field manager.

Traffic News

A total of 199,245 cars of coal of all kinds were loaded by the railroads during the week ended November 30, as compared with 221,159 during the corresponding week of 1917. The total increase in 1918 up to December 7 is estimated at 590,715 cars.

Navigation on the New York State barge canal was discontinued on December 12, for the winter. The estimated total amount of freight carried on the canal during the past season is 1,165,000 tons, which is slightly less than the total volume carried in 1917.

R. H. Aishton, Northwestern regional director, together with members of his staff and St. Paul railroad officers, conferred with members of the Minnesota Railroad and Warehouse Commission at St. Paul, Minn., on December 10. It was agreed that present transportation conditions demand maximum loading of cars despite the petitions from shippers that lighter loading be permitted. Mr. Aishton stated that he had no objection to the commission's order that state inspectors remove linings in grain cars when necessary in unloading.

The Mansfield Sheet & Tin Plate Company, Mansfield, Ohio, has filed with the Public Utilities Commission of Ohio a complaint against the Railroad Administration and the Pennsylvania Railroad, contending that the defendants are exacting switching charges in Mansfield in excess of the published rate. The rate in question covers the switching of carload freight between industries located within the switching limits of Mansfield. The defendants have been charging 30 cents a ton (minimum \$7.50 per car) or 10 cents a ton higher than the rate named in the defendants' tariff, Ohio F-763. In replying to the complaint, the Pennsylvania Railroad Company argues that it has not been engaged as a common carrier in transportation between points in Ohio since January 1, 1918, and asks that the complaint be dismissed. The Railroad Administration, defendant, has not yet replied.

Freight Passing Through Soo Canal

The freight passing through the Sault Ste. Marie canals in the month of November amounted to 8,513,511 short tons of which 6,355,760 tons were eastbound and 2,150,751 westbound. These totals are all below those of the same month of 1917. The most marked decrease was in eastbound traffic which was 2,398,083 tons short of the movement of a year ago; the westbound movement, on the other hand, showed a decrease of only 242,914 tons. Although there was a falling off in the total freight traffic handled, the movement of wheat eastbound was nearly 15,000,000 bu. in excess of the amount handled in November, 1917. The heaviest westbound traffic was in soft coal, the amount handled being 1,517,020 short tons or 368,566 tons less than were handled in the same period of the previous year. The movement of hard coal on the other hand showed an increase of 155,359 tons.

New Embargo on Loading of Hogs to Chicago

The standing embargo on hogs, together with the permit system of handling shipments under it, was cancelled recently at the request of the Food Administration and the packers. Recent developments in Chicago make the wisdom of this move questionable. As a result of exceedingly heavy shipments, induced by high prices, 50,000 hogs were left over at the Chicago stock yards on Monday night of this week and 55,000 additional arrived, so as to make a total of over 105,000 on hand before killing began on Tuesday morning, December 17. The normal receipts of hogs per day amount to about 60,000, which can be disposed of unless the receipts of cattle and sheep are exceptionally heavy. The accumulation at the Chicago yards necessitated the placing of an em-

bargo on all shipments of hogs to Chicago until the left-overs at the yards and the 140,000 hogs in transit are taken care of.

Arrangements for Holiday Travel

The Railroad Administration will arrange ample ticketing facilities at the military camps, and, when necessary, will keep consolidated ticket offices open to a reasonable hour at night to permit the advance purchase of tickets for holiday trips. Regional Directors Markham and Winchell have been asked to give careful attention to providing the necessary train service.

In Washington, the consolidated ticket office will be kept open until 9:30 p. m. There will be 28 ticket windows at the Union Station open day and night as against 12 windows in operation last season. The Union Transfer Company has doubled its force and the same is true of the red-cap porters at the station. The passenger representatives assigned to the government departments in Washington have circularized the various buildings and are getting all advance information possible relative to persons who will go on vacations and those who will leave during the holidays permanently.

Additional Passenger Service to South

Additional through sleeping car service from New York to the South will be established on January 1 by the restoration of 15 of the through sleeping car lines that were discontinued north of Washington a year ago as a war measure.

The Pennsylvania train leaving New York at 8:08 a. m. will have sleeping cars to Jacksonville and Port Tampa, via the Atlantic Coast Line. A new train leaving New York at 2:04 p. m. will have sleeping cars to Palm Beach, Miami and St. Petersburg, Fla., via the Atlantic Coast Line, and to Miami and St. Petersburg, via the Seaboard Air Line. Through sleepers to White Sulphur Springs and to Virginia Hot Springs, via the Chesapeake & Ohio and to New Orleans, via the Southern, will leave New York at 3:38 p. m. Northward sleeping cars will be added to corresponding trains. Through baggage cars will be run between New York and Jacksonville, via the Pennsylvania, the Atlantic Coast Line and the Seaboard Air Line. Car via the Atlantic Coast Line will leave New York at 8:35 p. m., and car via the Seaboard Air Line will leave New York at 12:15 midnight. Through baggage car to Atlanta via the Pennsylvania and the Southern will leave New York at 12:30 midnight.

Traffic League's Committee on Railroad Legislation Appointed

A resolution was adopted at the annual meeting of the National Industrial Traffic League, in November, authorizing the creation of a committee to study the railroad problem and, in particular, to consider such additional legislation as may be deemed necessary to protect the interests of the shippers and the general public upon the return of the railroads to private operation. This committee has been appointed as follows:

F. T. Bentley, traffic manager of the Illinois Steel Company, Chicago (chairman); H. C. Barlow, traffic director, the Chicago Association of Commerce; W. H. Chandler, manager, transportation department, Boston Chamber of Commerce; J. M. Belleville, general freight agent, the Pittsburgh Plate Glass Company, Pittsburgh, Pa.; C. E. Childe, manager, traffic bureau, Omaha (Neb.) Chamber of Commerce; J. S. Davant, commissioner, Memphis (Tenn.) Freight Bureau; J. C. Lincoln, manager traffic bureau, Merchants' Association of New York; F. B. Montgomery, manager, traffic department, International Harvester Company, Chicago, and R. M. Robinson, traffic manager, the Greater Dayton Association, Dayton, Ohio. G. M. Freer, president of the league; R. D. Sangster, vice-president, and O. F. Bell, secretary, are ex-officio members of the committee.

PANAMA IMPORTED RAILROAD MATERIAL from the United States during 1917 to the value of \$14,000.—*Commerce Reports*.

Equipment and Supplies

Standard Car Deliveries

A total of 1,058 of the standard cars ordered by the Railroad Administration were turned out during the week of November 30, as follows:

Road	Number	Type	Manufacturer	Total accepted for given roads
A. C. L.	12	50 T. Comp. Gond...	A. C. & F. Co.	12
B. R. & P.	231	55 T. S. Hopper....	Pressed Steel Co.	477
B. R. & P.	34	55 T. S. Hopper....	Pullman Car Co.	300
C. C. & O.	120	55 T. S. Hopper....	A. C. & F. Co.	120
C. & N. W.	103	50 T. Comp. Gond...	A. C. & F. Co.	438
C. & N. W.	74	40 T. D. S. Box....	A. C. & F. Co.	1,211
C. B. & Q.	19	40 T. D. S. Box....	A. C. & F. Co.	19
C. C. C. & St. L.	3	55 T. S. Hopper....	A. C. & F. Co.	184
Georgia	63	50 T. Comp. Gond....	Pressed Steel Co.	63
K. & M.	100	55 T. S. Hopper....	Ralston Steel Co.	200
Mich. Cent.	35	50 T. Comp. Gond....	Haskell & Barker.	35
N. Y.	120	40 T. D. S. Box....	A. C. & F. Co.	146
N. Y. C.	120	50 T. Comp. Gond....	Pressed Steel Co.	500
N. Y. C.	24	50 T. Comp. Gond....	A. C. & F. Co.	87
Total	1,058			

This brings the total number accepted on the order for 100,000 up to 7,342.

Locomotive Deliveries

There were 67 new locomotives shipped to railroads under federal control during the week ending December 7, of which 49 were of the U. S. R. A. standard types, as follows:

Works	Road	No.	Type	Individual Engine No.
American	*N. Y. C.	16	USRA Mikado	5114-29
	C. & O.	2	USRA Mountain	133-4
	Southern	8	USRA Santa Fe	5202-9
	Penn L. W.	4	USRA 6-W. Swch.	7300, 7216, 7314, 7641
	Southern	6	USRA 8-W. Swch.	1885-6, 1889-92
	C. & N. W.	12	Mikado	2448-9 & 52-61
Baldwin	Long I.	2	8-W. Swch.	235-6
	Ter. of St. L.	2	USRA 6-W. Swch.	157-8
Total				52
Lima.....	N. Y. C.	6	USRA Mikado	5163-68
Baldwin	C. B. & Q.	1	Mikado	5094
	C. G. W.	5	USRA Mikado	754-7, 9
	Southern	1	Mallet	4012
	L. V.	1	Pacific	2130
	A. T. & S. F.	1	Mikado	3222
Total				9
Grand total... 67				

*Sixteen USRA Mikado constructed for the New York Central were sent to Albany, N. Y., to be stored as part of an emergency pool.

Car Deliveries

A total of 1,734 of the standard cars ordered by the Railroad Administration were delivered during the week ending December 7, as follows:

Road	No.	Type	Manufacturer	Total accepted for given roads
A. C. L.	15	50 T. Comp. Gond.	A. C. & F. Co.	27
B. R. & P.	23	55 T. S. Hopper	Pressed Steel Car Co.	500
C. C. & O.	118	55 T. S. Hopper	A. C. & F. Co.	222
C. & N. W.	39	40 T. D. S. Box	A. C. & F. Co.	1,250
C. & N. W.	55	50 T. S. S. Box	A. C. & F. Co.	55
C. & N. W.	62	50 T. Comp. Gond.	A. C. & F. Co.	500
C. B. & Q.	141	40 T. D. S. Box	A. C. & F. Co.	160
Georgia	37	50 T. Comp. Gond.	Pressed Steel Car. Co.	100
K. & M.	272	55 T. S. Hopper	Pressed Steel Car Co.	272
Mich. Cent.	115	50 T. Comp. Gond.	Haskell & Barker.	150
Mich. Cent.	199	50 T. Comp. Gond.	Pressed Steel Car Co.	199
N. Y. C.	105	40 T. D. S. Box	A. C. & F. Co.	251
N. Y. C.	51	50 T. Comp. Gond.	A. C. & F. Co.	51
N. Y. C.	32	50 T. Comp. Gond.	A. C. & F. Co.	119
N.Y., N.H. & H.	200	55 T. S. Hopper	Pullman Car Co.	200
N.Y., N.H. & H.	100	55 T. S. Hopper	Ralston Steel Car. Co.	100
N.Y., N.H. & H.	158	55 T. S. Hopper	Standard Steel Car Co.	158
T. & O. C.	12	55 T. S. Hopper	A. C. & F. Co.	12
Total—1734				

Locomotives

THE CARNEGIE STEEL COMPANY is inquiring for 6 locomotives.

THE EASTERN WISCONSIN ELECTRIC, Sheboygan, Wis., is inquiring for an electric locomotive.

THE UNITED RAILWAYS OF HAVANA have ordered 6 locomotives from the American Locomotive Company.

THE CONSTITUTIONALIST RAILWAYS OF MEXICO have ordered 8 Mikado locomotives from the Lima Locomotive Works.

Freight Cars

THE AMERICAN BRASS COMPANY, Waterbury, Conn., is inquiring for 1 steel flat car.

THE EASTERN WISCONSIN ELECTRIC, Sheboygan, Wis., is inquiring for 3 trailer dump cars.

THE MEXICAN PETROLEUM CORPORATION, New York, has ordered 50 10,000-gal. capacity tank cars from the American Car & Foundry Company.

THE PENNSYLVANIA EQUIPMENT COMPANY, 1420 Chestnut street, Philadelphia, Pa., is in the market for four all-steel, 50-ton capacity extension side dump cars.

Passenger Cars

THE PENNSYLVANIA EQUIPMENT COMPANY, Philadelphia, Pa., is in the market for one 42-in. gage combination passenger and baggage car.

Miscellaneous

GILLESPIE BROTHERS, New York, are inquiring for one motor inspection car for export to South America.

THE NEED OF LOCOMOTIVES IN CHINA.—One of the pressing needs of China today is locomotives. The demands upon the railways have far exceeded the expectations of the builders. The locomotives bought in the first instance have proved too small, and it is now clearly realized by the technical advisers of China that they must standardize upon a type that will meet their needs for a long time to come. This question is being earnestly considered at the present time, and the problem arises for British consideration: Will the standardization be along the lines of British design, or will it be made to conform to an American or European model, to the detriment of British interests? Of the fifteen lines composing the system of Chinese Government railways, only one was built by the Chinese themselves; it is financed by the Chinese Government, and is operated exclusively by Chinese. The funds for the construction and equipment of the various other railway lines of China were furnished by foreign capital of various nationalities, but, according to the American authority, Charles Denby, special assistant to the department of state, not in a single instance has America so constructed and equipped any of these lines. As a result, today the Continental-European—design of locomotive is predominant in China. On some of the lines, notably those under English and—hitherto—German influence, not a locomotive other than those built in accordance with the prevailing design common to the nation financing the railway was purchased or even considered, either for initial or subsequent equipment—at least up to the time of the outbreak of the war. Only in the case of the Chinese financed and operated railway have American builders been given a free hand, with the result that an American design was adopted, and a thorough standardization of power effected. Out of the 638 locomotives in service on all lines at that time only 15½ per cent were of American design and manufacture; and on the English, Belgian, and French lines, which operated at that time 365 locomotives, or approximately 60 per cent of the total, only eight, or approximately 2.2 per cent were of American design and manufacture.—*Eastern Engineering*.

THE ENGLISH RAILWAYMEN'S WAR BONUS has been advanced 3s. (\$72) commencing with November 1, making an advance of 33s. (\$7.92) per week. This advance will stand until a meeting in January, when consideration will be given to the question whether any further increase in the cost of living warrants another advance.—*Railway Gazette, London*.

Supply Trade News

B. B. Ayers, advertising manager of the American Steel & Wire Company, has transferred his headquarters from Chicago to 30 Church street, New York.

The Brown Hoisting Machinery Company announces the following changes in its organization: Harvey H. Brown, chairman of the board of directors; Alexander C. Brown, president; Melvin Pattison, vice-president, general manager and director; Robert G. Clapp, director; John F. Price, director; Ewen C. Pierce, general manager of sales.

The Truscon Steel Company, which for many years has been manufacturing pressed steel parts principally for use in its own products, announces the expansion of its business into the manufacture of pressed steel parts of all kinds. The work will be handled by the pressed steel department, headed by G. F. Danielson, as manager, who for 25 years has devoted his entire efforts to the manufacture of pressed steel products.

The Whiting Foundry Equipment Company, Harvey, Ill., announces changes that have been made in its organization. The following men have left the company: F. A. Rundle, general superintendent; C. A. Hardy, sales manager; G. R. Brandon and P. A. Dratz, Chicago representatives. Samuel Moore, formerly general manager of the Bond plant of the American Radiator Company, is now general superintendent, and the company will be represented in Chicago by George Ristine, formerly with the Pressed Steel Car Company; H. A. Wolcott, formerly with the McMyler Interstate Company, Cleveland, O.; E. V. Brown and Walter R. Hans, members of the company's engineering staff.

J. O. Barlow, late head of the department of maintenance (including betterments and improvements) of the Southern Pacific Company, announces the opening of a consulting engineer's office at 822 Phelan building, San Francisco, Cal. Mr. Barlow was formerly associated with the Northern Pacific as assistant engineer for four years; the Union Pacific as division engineer for eight years; for six years he served as chief engineer in various railway irrigation and power enterprises. He was also chief engineer for six years on the Western Maryland, and served as assistant chief engineer and chief of the maintenance department of the Southern Pacific, as above noted, for ten years.

The Western Electric Company's Plan for Former Employees Now in Military Service

The Western Electric Company announced this week the following plan for taking care of its former employees who may soon be discharged from military service.

Former employees who have been given a leave of absence for military service and who have been honorably discharged therefrom and who desire to again take up work in the company, should make application within 30 days after being mustered out of service.

If possible they will be promptly assigned to work for which their previous experience qualified them, at the rate of pay which others are then being paid for similar work.

If it is not possible to assign them to work immediately, they will be placed on a preferred list until such time as business conditions enable the company to place them. During their continuance on this preferred list they will enjoy the same rights with respect to the employees' benefit plan as they had while in the service of the United States, and they may take other employment.

When they are notified of a vacancy they should present themselves for work at the time stated, and failing to present themselves for ten days thereafter their leave of absence shall terminate.

Before assignment to any work, their suitable physical condition for such work must be determined in accordance with the regular routine.

Financial and Construction

Railway Financial News

BOSTON & MAINE.—Stockholders are to vote on January 9 on the question of approving the merger of the Boston & Maine to Concord and Montreal, the Connecticut river, the Fitchburg, the Lowell & Andover, the Boston & Lowell, the Kennebunk & Kennebunkport and the Manchester & Lawrence.

CHICAGO & EASTERN ILLINOIS.—The sale under foreclosure of this property, which has been postponed at various times, has again been postponed, from December 10, for ninety days.

COLORADO MIDLAND.—The supreme court of Colorado has overruled the district court and refused to allow the discontinuance of operation of part of the railroad.

COLORADO & SOUTHERN.—This company has declared a 4 per cent dividend on the second preferred stock and a 2 per cent dividend on the first preferred stock. A dividend of 2 per cent was paid in November, 1918, on the first preferred, so that this makes a regular 4 per cent dividend paid on both first and second preferred for the calendar year, 1918.

LEHIGH VALLEY.—In declaring the regular dividends of 2½ per cent, on the common stock, the directors say that "the company receives from the United States Government an adequate payment of the rental now due."

TOLEDO, ST. LOUIS & WESTERN.—The receiver has asked permission from the court to issue \$1,000,000 receivers' certificates to pay the interest on \$16,500,000 mortgage bonds.

Railway Construction

CANADIAN NORTHERN.—Bids are wanted December 14, for the construction of two concrete abutments at the crossings of the Little Madawaska river, at mile 147.4, Pembroke subdivision, about 67 miles west of Pembroke, Ont. Bids are also wanted on the same date for the removal of the present substructure and the construction of seven concrete piers at the Trent river crossing, mile 43.5, Maynooth subdivision, at Glen Ross, 13 miles north of Trenton, Ont.

EASTLAND, NORTHWESTERN & WICHITA FALLS.—Incorporated in Texas, with headquarters at Eastland, to build a railroad between May, Texas, and Wichita Falls, about 120 miles. It is understood that financial arrangements have been made and that the work will be started as soon as the survey is finished and the right of way secured. H. B. Brelsford, Eastland, and Fred W. Frost, Brackenridge, are incorporators.

ILLINOIS CENTRAL.—This road is asking for bids on a filtration plant at Baton Rouge, La., to cost from \$15,000 to \$20,000. The plant will have a capacity of 25,000 gal. per hour and will be equipped with two horizontal pressure filters and a subsidence tank. It will also be equipped with a chlorinating outfit to sterilize the water for drinking purposes.

This road has awarded a contract for a combination freight and passenger station at Dawson Springs, Ky., to T. S. Leake & Co., Chicago (November 22, page 939).

PENNSYLVANIA RAILROAD WESTERN LINES.—The C. R. Cummins Company, Cleveland, Ohio, has been awarded a contract for improvement work on the Pennsylvania, at Columbus, Ohio, including extensions of the eastward and westward classification yards, the building of a new stock yard, increasing the engine house layout, the extension of the stone yard, and additional improvements to the shops. The work will necessitate the rebuilding of the Cleveland avenue bridge spanning the yard tracks, which will be a concrete structure extending over about 18 tracks.

At Yellow Creek, Ohio, the Cummins company is also building for the Pennsylvania a running track between Yellow Creek and Hammondsburg, and later a new "Y" will be constructed. At Terre Haute, Ind., the Cummins company is building an eastbound classification yard.

Railway Officers

Railroad Administration

Central

F. W. Marquise has been appointed assistant to the manager of the Fuel Conservation Section of the United States Railroad Administration, with office at Washington, D. C., succeeding Edward C. Schmidt, major, Ordnance Department, United States Army, who was temporarily assigned to service with the Fuel Conservation Section, but has returned to the service of the War Department, effective December 14.

G. W. Kirtley has resigned as assistant director of the Division of Traffic of the Railroad Administration, effective on January 1, and will return to the service of the Erie, with office in New York, instead of becoming connected with the Department of Agriculture, as stated last week. Mr. Kirtley had been in the service of the Erie for 18 years when he resigned in 1917 as assistant to the vice-president in charge of operation to become assistant to the director of priority in transportation, at Washington. When the Railroad Administration was organized he was appointed assistant director of traffic. He was also a member of the United States Highways Council, representing the Railroad Administration.

Regional

C. M. Freeman, traveling engineer on the Sunset-Central Lines, has been appointed assistant fuel supervisor of the Central Western regional district.

Federal and General Managers

Theo. L. Dunn, having assumed duties with the Maine Central Railroad Company (corporation), his former position as assistant to federal manager has been abolished.

W. R. Hudson has been appointed general manager of the Atlanta, Birmingham & Atlantic; the Charleston & Western Carolina; the Augusta & Summerville; the Atlanta & West Point; the Western Railroad of Alabama; the Georgia; the Augusta Union Station; the Atlanta Terminal, and the Augusta Belt, with office at Atlanta, Ga.

Operating

H. W. Purvis has been appointed terminal manager of the Jacksonville Terminal Company, Jacksonville, Fla.

J. P. Walker has been appointed terminal manager of the Charleston Union Station Company, Charleston, S. C.

H. E. Hutchens has been appointed terminal manager of the Birmingham Terminal Company, Birmingham, Ala.

W. E. Booker has been appointed general superintendent of the Silverton Railway and the Silverton Northern Railroad, with headquarters at Silverton, Col.

J. R. Jones, superintendent of the International & Great Northern, at San Antonio, Texas, has been appointed superintendent of terminals of all railroads under federal control at San Antonio, Texas.

M. F. Leamy, superintendent of the Delaware & Hudson, at Albany, N. Y., has been appointed superintendent of the Champlain division, with office at Plattsburg, N. Y., vice **M. W. Sullivan** deceased.

W. H. Johnson has been appointed superintendent of terminals of the Norfolk & Western, with office at Roanoke, Va. The Roanoke terminals are now operated as a separate division in charge of the superintendent of terminals.

The jurisdiction of **D. H. Beatty**, superintendent of safety, with headquarters at Washington, D. C., and of the general safety committee of the Southern Railroad and associated railroads, has been extended to include the Georgia, Southern

and Florida; the Hawkinsville & Florida Southern, and the St. Johns River Terminal.

M. B. Smith, superintendent of the Columbus division of the Central of Georgia, has been appointed superintendent of the Macon and Chattanooga divisions, with headquarters at Macon, Ga., vice **M. A. Ramsay**, deceased. **Claude Baldwin**, superintendent of terminals at Macon, has been appointed superintendent of the Columbus division with headquarters at Columbus, vice Mr. Smith, and **J. Reichert** has been appointed superintendent of the Macon freight terminals, with headquarters at Macon, vice Mr. Baldwin.

W. H. Hall has been appointed superintendent of telegraph of the Gulf, Colorado & Santa Fe; the Atchison, Topeka & Santa Fe (Shawnee to Pauls Valley; Lindsay and Sulphur Branches); Fort Worth Union Passenger Station; the St. Louis, San Francisco & Texas; the Ft. Worth & Rio Grande; the Brownwood North & South; the Texas Midland; the International & Great Northern (from Spring to Ft. Worth and Madisonville branch); the Missouri, Kansas & Texas of Texas (except Trinity branch and Beaumont & Great Northern); the Wichita Falls & Northwestern; the Ft. Worth & Denver City; the Wichita Valley; the Houston & Texas Central; the Abilene & Southern; the Union Terminal of Dallas; the Houston Belt & Terminal; the Ft. Worth Belt and the Quanah Acme & Pacific, with headquarters at Denison, Texas, effective December 1.

Financial, Legal and Accounting

Edward D. Mohr has been appointed freight claim agent of the Louisville & Nashville, with headquarters at Louisville, Ky., vice **John F. Seger**, transferred.

J. F. Schutte has been appointed auditor of freight claims of the Baltimore & Ohio, eastern lines, and **C. G. Pollock** has been appointed auditor of miscellaneous accounts, with headquarters at Baltimore, Md.

Traffic

R. W. Hockaday, industrial commissioner for the Missouri, Kansas & Texas and the St. Louis-San Francisco, with headquarters at St. Louis, Mo., has resigned to engage in the oil business under the name of Hockaday & Co., with headquarters at Wichita Falls, Texas. Associated with Mr. Hockaday is **C. H. Evans**, formerly industrial agent for the Missouri, Kansas & Texas. Mr. Hockaday has been connected with the Missouri, Kansas & Texas for about 25 years, beginning as a stenographer at Houston, Texas. He was subsequently traveling freight agent at Kansas City, Mo., commercial agent at Denver, Colo., and Cincinnati, Ohio; general freight and ticket agent in Kansas, and industrial commissioner at St. Louis in charge of colonization, agricultural and industrial development. When federal operation of the railways became effective, Mr. Hockaday was appointed industrial commissioner of the Missouri, Kansas & Texas and the St. Louis-San Francisco.

A. C. Irons, whose appointment as general passenger agent of the Chicago Great Western, with headquarters at Chicago, has already been announced in these columns, was born on May 21, 1880, at Chicago. He began railway work in 1898 with the Western Passenger Association, remaining with that organization until January, 1904, when he became assistant rate clerk for the Chicago Great Western. From July, 1904, to January, 1905, he was ticket seller at the Dearborn station, Chicago, and the following four months was chief clerk in the city ticket office of the Chicago, Rock Island & Pacific at Chicago. He then went to the Chicago Great Western as chief rate clerk in the general passenger department at St. Paul, Minn., and from May, 1907, to May, 1910, was successively chief clerk in the general passenger department at St. Paul and Chicago. On the latter date, Mr. Irons was promoted to assistant general passenger agent, which position he held until his appointment on November 19, as general passenger agent.

A. Lindsay Craig, whose appointment as general passenger agent of the Union Pacific, with headquarters at Omaha, Neb., was announced in the *Railway Age* of December 13, was born at St. Paul, Minn., on November 19, 1861. He began

railway work in July 1880, as a rodman on construction on the Northern Pacific, and from July, 1881, to April, 1888, was clerk in the auditor's office. He was then chief clerk in the general passenger and ticket office until September 1, 1891, when he was promoted to assistant general ticket agent, being made assistant general passenger and ticket agent in June, 1900. In February, 1901, he became general passenger agent of the Oregon Railroad & Navigation Company, and in July, 1906, he went with the Great Northern as passenger traffic manager. The following June he was appointed general passenger agent of that road, which office he held until September 1, 1909. He became general passenger agent of the Chicago Great Western on October 15, 1909, in which position he remained until his recent appointment as general passenger agent of the Union Pacific.

Engineering and Rolling Stock

J. L. Campbell, engineer maintenance of way of the El Paso & Southwestern, has been appointed chief engineer, with headquarters at El Paso, Texas.

Zill Pierce has been appointed master mechanic of the Saratoga and Champlain divisions of the Delaware & Hudson, with headquarters at Colonie, N. Y., vice **A. L. Moler**, resigned.

F. M. Graham, division engineer of the Chicago Terminal division of the Pennsylvania Railroad, Western Lines, with headquarters at Chicago, has been transferred to Columbus, Ohio, as supervising engineer, in place of **R. C. Harris**, appointed general storekeeper. **G. R. Barry**, division engineer at Columbus, has been transferred to the Chicago Terminal division to succeed Mr. Graham; **H. T. Sympson**, assistant division engineer of the Eastern division at Pittsburgh, Pa., succeeds Mr. Barry as division engineer at Columbus.

Corporate

Executive, Financial, Legal and Accounting

Frank Lethenstrom has been appointed auditor of the Chicago, Milwaukee & St. Paul for the corporation, with office at Chicago.

Operating

George Reith, superintendent of the Norfolk division of the Virginian Railroad, with office at Victoria, Va., has been appointed general manager of the West Virginia Northern, with headquarters at Tunnelton, W. Va.

Engineering and Rolling Stock

E. S. Pennebaker has been appointed corporate engineer for the receiver of the Texas & Pacific, with headquarters at Dallas, Texas, effective December 1.

G. E. Smart, superintendent of the car department of the Canadian Northern Railway System, has been appointed general master car builder, with jurisdiction over all lines of the Canadian Northern and the Canadian Government Railways, with office at Toronto, Ont.

Major F. L. C. Bond has been appointed chief engineer of the Grand Trunk, to succeed **H. R. Safford**, resigned to accept service with the United States Railroad Administration. Major Bond was division engineer, eastern lines of the Grand Trunk in 1916, when he went overseas with the Canadian Expeditionary Force.

Purchasing

The jurisdiction of **E. Langham**, general purchasing agent of the Canadian Northern Railway System, has been extended to include all the Canadian Government Lines, with headquarters in Toronto, Ont.

Obituary

T. M. Chapman, superintendent of fire prevention of the Central of Georgia, with headquarters at Savannah, Ga., died on December 4 of pneumonia following an attack of influenza, at the age of 45 years.